

Farriery Improved:

OR, A COMPLEAT

T R E A T I S E

UPON THE

ART of FARRIERY:

Wherein is fully explain'd,

The NATURE, STRUCTURE, and MECHANISM, of
that noble and useful Creature,

A H O R S E.

The DISEASES and ACCIDENTS he is liable to, and
METHODS of CURE:

Set down in as clear and intelligible a Manner as the Subject will
admit of.

T H E

USE and ABUSE of the SCIENCE discovered; whereby any Gen-
tleman may be able to judge for himself, whether or no he is impos'd
upon by ignorant GROOMS, and other PRETENDERS to this ART.

Together with

Many necessary and useful *Observations* and *Remarks* concerning the
Choice and Management of HORSES.

L I K E W I S E

An Account of DRUGS and MIX'D MEDICINES used in *Farriery*;
with some Remarks upon their Genuineness or Adulteration; and
their several Prices, set down alphabetically at the End of the Work.

By HENRY BRACKEN, M. D.
AUTHOR of the NOTES on BURDON.

- - - - - Ubi Equos, mercantur, Opertos

Inspiciunt: ne si facies (ut sæpe) decora

Molli fulta pede est, emptorem inducat hiantem

Quod pulchræ Clunes, breve quod Caput, ardua Cervix.

HOR.

D U B L I N:

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T O

Sir *Nathaniel Curzon,*

B A R O N E T.

S I R,

IT is with the greatest Pleasure and Satisfaction that I have an Opportunity of publishing the following Pages under your Patronage and Protection.

No one can be ignorant how ready you are, upon all Occasions, to promote any thing which aims at the Publick Good. And if these my Labours prove of Use or Benefit to Mankind, in informing them how to cure the Diseases which infest that useful Creature a Horse, I must confess the Acknowledgment chiefly due to you, who first engaged me to treat more fully upon this Subject than I had formerly done in my Notes upon Captain *Burdon's Pocket Farrier*.

You are sensible, no doubt, of the great Losses daily sustain'd for want of better Helps in the Farriers Province. And I need not tell you, that these are generally a very ignorant Set of Men, whose Arguments are weak and inconclusive.

A 2

Whatever

D E D I C A T I O N.

Whatever Success this new Attempt may meet with, I could not forbear making an Offer of it to you, as a Regard due to your publick Merit. Your Deportment in every Station must be truly acknowledged that of a Gentleman, and in all Respects becoming a faithful Representative of your Country; for in that Capacity you have indeed merited the Esteem of all who are desirous of the Publick Safety. And it will appear to the World, whenever there shall be Occasion for your farther Assistance, that no one can be more ready to maintain our ancient Rights and Liberties.

This we may the more reasonably expect from you, as you are not only possess'd of Qualifications suited to the noblest Actions, but also favoured by the Almighty with such a plentiful Fortune, that has plac'd you far above the Reach of Bribery and Corruption, and that Meanness of Spirit so remarkably apparent in the cringing Sy-cophant.

I cannot otherwise express my Gratitude for your kind Recommendation of this Work, than by testifying, in the most publick Manner, how much

I am,

S I R,

Your most devoted,

And most obliged

Humble Servant,

*Lancaster, June 12,
1737.*

HENRY BRACKEN,

T H E P R E F A C E.

TO attempt any thing for the Improvement of useful Arts is a Debt, that every capable Person owes to the Publick, all Civil Societies having a Right to the Property of private Persons for the common Good.

I must submit the following Pages to the Censure of the World; but I beg to be judged by capable Judges; for it is not every Pretender to Medicine (of how great Repute soever) that is a competent Judge of some demonstrated Truths.

I do not say, that the Practice of Physick ever will be, much less that it now is the Object of mathematical Certainty: But this I dare assert, that what Improvements there have been or are likely to be made in the Theory of Medicine, are all under the Conduct of Arithmetick and Geometry.

A human Body is a curious Machine; and so is that of every Creature thro' the whole Creation; for the component and constituent Parts of a Horse are subject to the same Laws of Motion as that of a human Body, and both these to the Laws by which the infinitely wise God governs the Universe: For both Man and Beast are composed of Solids and Fluids, which are governed by the Laws of Gravitation, Impulse, and Reaction; and what Changes are brought about in the animal Economy by the Motion of Matter under the Conduct of these Laws, can no way be estimated so well as from the Mathematicks.

Let us not wonder then to see a Physician take Pen in Hand, in order to write down a Discourse upon the Distempers in Horses, seeing (as I have said before) the Property of Body is alike in human and brute Creatures: And besides, there is full as much Learning required to treat tolerably upon this Subject, as there is in compiling any other physical Treatise; which Truth I could plainly make appear from several Circumstances, but that my Time at present forbids it. Therefore, I say, let not my Brethren murmur and complain at me, as if I were debasing the Profession, seeing it is certainly Fact, that he who cannot write sensibly about the Distempers in brute Creatures, is not fitly qualified to prescribe for Man, by reason 'tis plain he has not studied Nature thoroughly.

It

It is a received Maxim, that Medicine should begin where Philosophy ends; and it is undoubtedly an essential Qualification in a Physician to be a good Philosopher: But all the Philosophy, that has yet appeared in the World, is no better than trifling Romance, except what has been writ by the glorious *Sir Isaac Newton*, who was an Honour to the *British* Nation.

This wonderfully surprizing Genius made such Discoveries, by the Help of geometrical Reasonings on Matters of Fact, as must be an eternal Monument of Honour to his Memory; and if People would only give themselves Liberty to think, and not be carried away by outward Appearances, I question not but in a short time we should discover something as remarkable in our Little World, as that illustrious Author has done in the Great.

I have purposely omitted a separate and distinct Discourse upon the Anatomy of a Horse, that being done to my Hand so well by Mr. *Snape* and Mr. *Gibson*; therefore I have only taken Occasion now and then to speak something of Comparative Anatomy, when I am treating of the Diseases of the Liver, Lungs, &c. which will easily lead any judicious Reader (as near as possible) into what we term the *Ætiology* of Distempers.

I must likewise inform the Reader, that I had the Offer of numberless Receipts (as they are term'd) from several Gentlemen, that I might insert them in this Book; but I have not in the least made use of any of them, seeing he who has his Head full of Receipts has his Head full of Nonsense, by reason there is not any such thing as practising by Receipts, and a Number of them only serve to perplex and confound the Reader; therefore I have not err'd in this Particular, altho' I hope I have set down what is necessary for the Cure of each Distemper in Horses.

As to any farther Particulars, I must refer to the following Discourse; and shall only here take notice in general, that as all possible Brevity has been studied on the one Hand, so I have not omitted any thing necessary to be known by those who desire to lend a helping Hand in the Cure of Diseases in Horses, which I myself sometimes thro' Charify sometimes thro' Curiosity have often done, for the Benefit of these dumb but serviceable Creatures, which are not below the Study of the most able Head.

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THE

THE
ART
OF
FARRIERY
IMPROVED.

CHAP. I.

Of the Signs of Sicknefs in Horses.

I HAVE formerly (in my Preface to the Notes upon Captain Burdon's Pocket Farrier) hinted, that it is a very difficult Matter to come at the true Knowledge of Distempers in Horses, and that more Skill and Judgment is required in the Cure of them, than in those of a Human Body; because the poor Creature cannot answer any Questions, therefore we must have Recourse to the Motions of his Head, Gestures of his Body, &c. Monf. Solleysell, a French Author, has treated very largely as to the last Particular; but his prolix Manner of Writing, as well as that of some others of the same Stamp, has been a Means to bewilder and confound most of our common Farriers, who (I am sorry to say it) are generally an ignorant Set of empty Coxcombs, whose Discourse about Distempers would make a knowing Person sick to hear it: And were it not for beneficent Nature, whose Power happens to be too strong and working for the Recovery of the sick Creature, in opposition to the Farrier's Prescription, I say, was it not for this, they would most (if not all of them) be cashier'd Gentlemen's Stables. But it is in this Science, as well as in all other Branches of Physic, viz. that a Person shall have the Name of performing a Cure, when Nature has been the principal, if not the only, Agent in

it; and no doubt many times would (with proper Diet, Exercise, &c.) restore Health sooner, was it not for a long Tribe of ill-contriv'd Medicines, or rather *Hotch-potches*, forced into a Horse's Stomach, in small Spaces of Time, which obstruct her in her Operations. But before I proceed to a Definition of Sick-ness, I think proper first to define what is meant by *Health*.

Health de-
fin'd.

Health then is justly defined the Faculty of performing all the Actions proper, (in any Creature as well as a human Body) in the most perfect Manner; and all the Effects of these Actions are such, as regard certain determin'd Motions, or the Change and Alteration of what is receiv'd into the Body; and on the contrary,

Sickness de-
fin'd.

Sickness or *Disease*, is an unusual Circulation of Blood, or the circular motion of Blood augmented, or diminished, either throughout the whole Body, or some Part of it; and this is what has been a generally receiv'd Axiom ever since the Circulation of the Blood was known, and *Mathematicks* and *Natural Philosophy* have been introduced into the Practice of Physick.

Most of our ancient Authors who have writ upon the Art of Farriery, have puzzled the World with their Accounts of Horses Complexions, (as they idly term it,) and from these Complexions they imagine a great many Diseases proceed. Others again, lay the greatest Strefs upon the four Elements, which the Chymists confine to Fire, Air, Water and Earth, and then proceed to give an Account of the four Humours, which they will have to be Blood, Phlegm, Choler, and Melancholy; then they go on with their Temperaments, such as Hot and Dry, Cold and Moist, as this or that Humour is predominant; and some of these them, particularly Markham, has refined so far on this Head, as to pretend to tell by the Colour of a Horse, which of the Elements has the Ascendant in him.

Indeed I cannot say but there is something in the Colour of a Horse which may denote his being hardy and able to endure all Weathers, or otherwise, of a watly Constitution; But I am far from thinking, that there is so much in the Colour as Markham imagines; I shall therefore deviate from the common Paths of these Rosicrucian Sages, (whose Brains were much more full of Humours than most Horses Bodies with which they had any thing to do,) and inculcate a Practice founded upon right Reason and Experience.

Broken
Wind.

Grease, &c.

I take a Horse, of the best Sort, to be one neither too fiery nor sluggish; for if he be of the first Disposition, he's subject to Fevers and Asthma's, which last is what the Farriers call a Broken Wind; and if he's of a dull sluggish Temper, he's more subject to the Grease, and Scratches, with all the foul Concomitants of a slow and languid Blood; such as the Farcin, distemper'd Eyes, Poll-Evil, all Eruptions or Breakings out upon his

his Body, with several other Disorders, which I shall touch upon in the Sequel of this Discourse.

As to the six *Non-naturals*, or *Res non naturales* as they are called by the *Latins*, I shall not trouble the Reader with a Discourse upon them, seeing I think the same would not profit much. Therefore, I shall content myself with the bare mention of them, and make use of the Term as often as I shall find occasion; though, I hope, with greater Perspicuity and Plainness than many who have writ, upon this Subject, before me.

First then, a particular Regard must be had to the *Symptom* most urgent, or in plainer Terms, to the most dangerous Sign or Token of the *Distemper*; as for Example, If a *Horse* be seized with a *Hæmorrhage*, or Violent Bleeding, from a *Wound*, or otherwise, the main Business is to stop it, and afterwards to consider of proper *Medicines* to remove the Cause; in like manner, if a *Horse*, or (as is most frequent) a *Colt* be in the *Strangles*, *Bleeding*, *Glysters*, *Sweating*, and other *Evacuations*, are immediately required; setting aside all other Considerations of *Sickness*.

Secondly, if there be several *Diseases* at one and the same Time, regard must be had to them jointly; only take this along with you, *viz.* that the most dangerous Enemy is first to be encounter'd.

Thirdly, if the Indication or Sign of a *Disease* be taken from the Blood, it is to be considered, that all Disorders thereof depend on the circulatory Motion being increased or diminished; and that all the Changes in the Texture and Quality of the Blood (as also in it's Quantity) are attended with either a Diminution, or Increase of the Blood's Velocity; Therefore, if the Quantity is too much augmented, *Bleeding* and other *Evacuations* are necessary; but if it's Quantity is diminished, then *Restoratives*, *Rest*, and nourishing Food may be required: And if this last proceed from any Error in the *Stomach*, causing Loss of Appetite, &c. then those things which create Hunger and help *Digestion* are to be administered; and if the *Crafsis* or Texture of the Blood be changed, (as is usual in long continu'd *Sicknesses*) then it may be necessary (having due regard to other Intentions) to prescribe such Things as may correct the vitiated Mass.

Bleeding,
when necessary.

Fourthly, when the *Distemper* proceeds from an Increase or Diminution of some Secretion or Discharge, the Cure (for the most part) consists in enlarging the Secretions, which are too sparing, and restraining such as are too liberal; and no doubt the safest Method to restrain any augmented Secretion, is by increasing some other. And this Practice, if rightly understood, would be of the greatest Use and Benefit to *Farriers*, as it is now a received Maxim in *Physick*.

I would be understood, when I speak of an augmented Secretion, that such Secretion or Discharge is a *Disease*, and not a Remedy; for very often a Secretion augmented proves a Cure

Augmented
Secretions
what.

The Art of FARRIERY

of some Disease either already broke out, or lurking in the Body; and in such Case all imaginable Care is required, lest we should by stopping (or even checking) such critical Discharges, bring on a Train of Evils far worse than the present.

It is impossible for me to teach (the greatest number of) my Readers, the Usefulness of this Theory, by reason it requires long Study and Experience; however I shall give an Instance or two, and then proceed.

Perspiration
obstructed,
the Cause of
Looseness.

I say then, if a Horse be Lax, or has a Scouring upon him, if such Discharge proceed from a Disorder of the Guts, only by a Putrefaction of the Excrements too long retained, in such Case no Man in his Senses will give Medicines which astringe or bind, but on the contrary, exhibit something which may slowly and safely promote this so necessary Discharge. But if the Cause of a Looseness proceeds from an obstructed Transpiration, or that Sweating, which we call insensible Perspiration, being stopped, then indeed such Things as promote Sweat and Urine are most eligible. The like Method is to be observed in most other Secretions, as in Sweat, Urine, running at the Mouth and Nose, which is often observable in Horses in the decline of Sickness, and when the Distemper is going off.

Nature the
best Guide.

Fifthly, as in Man, so in Horses, Nature (or at least what we understand by that Name) is the best and surest Guide, and therefore the Farrier ought diligently to follow her, because whenever she finds herself oppressed, she endeavours to dislodge the Enemy, and to that end, tries all the nearest and properest Means: And it is surprizingly wonderful, what a Number of Outlets and Drains, Nature has furnished for the Preservation of Health, or the Recovery of it when lost; for such, are most or all the Glands by which Secretion is performed. Furthermore, though Nature is diligently and carefully to be observed and assisted in her due Operations; yet she is not to be compelled, but must herself be the Beginner, nay and ought to be very often the Finisher of the Work also.

I think I have said enough under these Heads, therefore I shall proceed to a Discovery of some Errors in the Methods usually taken to prevent Diseases in Horses, with the properest Means to preserve Health.

C H A P. II.

Discovering some Errors in the Methods usually taken to prevent Diseases in Horses, with an Account of the most proper Means to preserve Health.

Health only
relative.

AND first, I say Health, in it's best Estate, is only relative: for it is impossible any Creature should keep at the same Standard or Mathematical point of Health, even a Moment of Time;

Time; therefore 'tis only *Relative*: Yet all Creatures may properly be said to enjoy *Health*, when they *sleep, eat, digest well, and move without pain*; and all this depends upon a regular and uniform Motion of the Blood; and whatever contributes to that regular and uniform Motion, must be the Means to preserve *Health*. But, on the other hand, it must be allowed, that the same Means which are used in times of *Sickness*, to restore the *Blood* to it's regular Motion, must be prejudicial in a State of *Health*, by reason such Means must effect a Change in the *Animal Oeconomy*, more than necessary. Thus *Bleeding* and *Purging*, may be serviceable to prevent a *Disease*, provided a Horse be *Plethorick* and full of Blood; or if he has other Signs or Symptoms which denote such Evacuations useful: But then it must be allowed, these are *Diseases* actually begun, and if a Horse has none of these Signs that require Evacuation, all the Effect bleeding can have upon him, is the *Lessening the Quantity*, which is too often the Case, and of pernicious Consequence, by reason such Evacuation gives the *Blood* a different Motion from what it before had in a *healthful State*.

Should any one pretend to insist, that these Evacuations are made in order to bring a Horse into a better and more healthful State, and thereby strengthen his Body, and enable him the more to resist *Diseases*; I answer, that there is a certain State of *Health* which is natural and agreeable to every Horse, and that it consists in the before-mentioned Requisites, *viz. in a Life free from Pain or any sensible Imperfection*. And there is not the least doubt but (as among Men) one Horse may in Constitution differ from another, and enjoy a more perfect Degree of Health; which difference is owing to their original Conformation, Structure or Make. And of this Part of Knowledge we are much more in the Dark with relation to Brute Creatures, for as much as their *Complexions* or Constitutions are not discoverable thro' their Skins; but these may easily be perceived in a human Body, and a very just *Prognostick* or Token formed with relation to their inward State of *Health*. For how common is it for us to say of a Child or young Person, he or she is an *Ill-thriven* or *puny* Creature; but as I have just now hinted, this Judgment is not so easily made in *Brutes*, for Reasons too plain to be objected against.

Horses Complexions not discoverable thro' their Skins, but 'tis otherwise in Men.

Lastly, all that can be expected, from tampering with Horses that are in their best State, is little or no Alteration; more especially if a Horse has Youth and Strength to withstand the Shocks given to Nature by *Physick* ill administered; or if otherwise, it will certainly be an Alteration for the worse, by reason that a Horse (naturally of a strong Habit of Body) may thereby be brought into an habitual Weakness, and this becomes a *Disease*. So likewise may a weak Horse be made much weaker (I mean a naturally weak and tender constituted Horse) by

Tampering
with Phy-
sick bad and
of ill Conse-
quence.

The Cause
of several
Errors in the
Practice of
Farriers.

A vulgar
Error among
Farriers.

Male-Administration of, or Tampering with *Physick*, which Accidents very frequently happen by such unskilful Management, altho' they are generally attributed to some other Cause, as foreign to the Affair, as to say, that *Tenderden Steeple was the Cause of the Goodwin Sands*.

I fancy what has led *Farriers* into these Errors, is their confused Notion of the *Blood* and *Humours*; altho' I must ingenuously confess, I never yet talked with any one of their Tribe that could distinguish between a *Vein* and an *Artery*, or a *Tendon* and *Nerve*, &c. Therefore, how can it be expected, such illiterate, (but positively ignorant) Coxcombs, should perform any thing extraordinary in the Cure of either inward or outward *Maladies*. For these *Adepts* would make us believe, that almost all *Diseases* proceed from corrupt *Blood*, and therefore imagine the same, like Pond, or Ditch-Water, which gathers Mud, or Filth at certain Times, so that it should be often cleansed. And because the *Blood* of these Creatures (most of them, being used to Toil and hard Labour) is for the most part of an unpleasant Aspect, they seldom or never take it away, but they declare him full of corrupt and bad *Humours*, not considering that this may be the most natural State his *Blood* could be in at this Time, and that the same may be cleansed or purified sooner than by Bleeding, altho' I own this practice does not so well *quadrate* or square with the outward Senses of most People who judge by Appearances only.

In the next place you are told that the *Horse* wants *Purging* as well as *Bleeding*; for the *Farriers* (poor Souls) have not the least Notion of alterative Medicines, whereas the greatest Feats may (without any manner of dispute) be performed by such things in most obstinate *Chronic* Cases, which have puzzled even the *tip-top* Gentlemen of the Profession.

There is another Thing which seems to have given Encouragement to the Practice of administering Medicines to *Horses*, which did not thrive well (as the Term goes,) viz. because they have been observed to eat plentifully and not become fatter or in better liking, till such time as Evacuations have been pretty largely and plentifully made: Indeed when ever any such thing happens, there is then a Sign of a *Disease*, proceeding from some Obstructions in the *Mesentery* or *Net* (as 'tis called in other Creatures besides Men,) or from some viscid, tough, or slimy Humour or Matter lodged in the first Passages, (which are the Stomach and Guts;) this indeed may hinder a sufficient Quantity of *Chyle* (which is the white Juice of our digested Food) from entering into the Blood: But, I don't mean such, therefore would be understood only as to those *Horses*, which on full Examination and Experience, are found to enjoy as sound and perfect a State of *Health* as they have ever been known of. These are the *Horses* which should
not

I M P R O V E D.

not be *bled*, *purged*, or have *Cordial Drinks* given, at such Times as are prescribed in *Farriers Books*: For what can be more ridiculously absurd, than (as is the common Custom) to bleed a whole *Troop* of *Dragoon Horses* in a Morning, just before they are turned to Summer-Grass; surely they are not all in the same *Distemper* at one and the same Time, and which requires bleeding; And this is perform'd by way of preventing *Diseases*: But let such, who warrant the Practice, go on in the blind Road of Ignorance; for I suppose they will be averse to better *Guides*.

But lest I should be thought too peremptory and positive upon this Head, or to deviate too far from the common receiv'd Rules about *Bleeding*, *Purging*, &c. I shall lay down some few Cases, wherein *Bleeding*, or other *Evacuations* may be made, even when there are no Indications to be taken from *Sickness*: But even these are discretionary, and to be practised with Caution and Judgment: For instance, *Bleeding* may be of Service to young *Horses* which are pretty fat, or have undergone any hard Exercise, or after a Journey in a hot Season; because either the one or the other is apt to augment and increase the Blood's Motion in too great a Degree, which may (before it has acquired any ill Tendency) be thus remedy'd; But even this may not be necessary to *Horses* that are accustomed to constant Exercise, as Hunting, or the like, or those that travel mostly the Year about; such are *Stage-Coach-Horses*, *Post-Horses*, &c. Secondly, a *Horse* that has been much used to standing, and gets but little Exercise, may have a Vein open'd, especially if there be any Reason, to suspect his Blood growing Viscid and stagnating for Want of proper Airings; Because, while he is thus kept, a *Disease* may insensibly, and by degrees, be creeping upon him, while as yet no certain Indication can be taken from outward Signs. Thirdly, it may be proper to bleed, provided a *Horse* has had the Misfortune to tumble into a Pit of Water or deep Ditch, and the more so, if he has continu'd there any considerable Time; for altho' he does not shew immediate Signs of Sickness, yet such Accidents are a sufficient Warranty for *Bleeding* and *Cordial Remedies*; by reason the Astriction or Shutting up of the *Pores*, occasion'd by the Coldness and Pressure of the Water, may cause either a *Fever*, or a violent *Cough*, which may very likely end in the *Glanders* or some other as fatal *Distemper*.

The same Cautions should be observed, as to administering purging *Medicines* to a *Horse*, which ought never to be done barely at a Venture, but when the *Farrier*, or Owner may have a strong Suspicion of a latent or hidden *Distemper*, which as yet is not discernible; and this may be thought necessary when a *Horse* has eaten unwholesome *Food*, or drunk bad *Waters*, which he has not been accustomed to; whether it proceed

The Art of FARRIERY

from Carelessness or want of better Nourishment. I say, in these, or such like Cases, *Bleeding* or *Purging* may be used by way of Prevention. And I the rather so far give into these Methods, (with respect to Brute Creatures) because several of their *Diseases* may actually have a footing, before they can well be discerned, and because they do not immediately shew us any Signs or Complaints of Sicknes.

Yet, notwithstanding all I have said, the Practice of giving Medicines at Random is not justifiable, by reason it oftner proves prejudicial than any way contributing to the *Horses* Safety. And I therefore affirm, that *unnecessary Evacuations* of any kind, cannot be the way to prevent Diseases, but that due Feeding and proper Exercise, are the only safe Means, and will sooner bring a Horse into good riding Order, than repeated Doses of Physick, when there is no apparent Necessity for it.

All Evacuations or Discharges effectuated by Medicines, lessen the Quantity of the Blood, but most immediately Blood-letting: And if this has been frequently repeated, or Blood taken away at once in a large Quantity, the remaining part becomes languid in it's Motion: forasmuch as a lesser Quantity of Spirits must of consequence be derived or separated from a lesser Quantity of Blood; therefore it has not Force enough to reach the Passages of the Skin and miliary Glands, so as to make the proper Secretions there; and from hence it may be observed, that instead of preventing Diseases it becomes the Parent of many.

Purging does much the same as Bleeding, tho' after a different Manner, and may indeed be of much worse consequence to Horses, seeing all such Evacuations act more directly against Nature, even to such a Degree, that the whole animal Frame is put into great Hurry and Discomposure by the Exhibition of purging Medicines; for there is a wide and very different Operation of Purges given to a Horse from that in a human Body, which the least Discernment may discover: For Example, a Man is in an upright Posture, which helps to forward such Discharges; but this Creature, being in a prone and horizontal One, the Medicine, by such means, lyes longer in his Stomach and Guts, and twitches and vellicates their tender Membranes in a much greater Degree; neither can you force or oblige him to drink warm Water, if he be not of himself inclinable thereto. The best Method, in my Opinion, to prevent Diseases, is, in the first place, not to give a Horse any Kind of Food which may be thought unwholsome, and let them drink Rain or River Water which is clear and not troubled. I say these, along with proper Exercise, must conduce more to the Preservation of Health, than all or any the differently prescribed purging Physick too commonly made Use of without reason.

Exercise,

Exercise, no doubt, is essentially necessary for preserving Health in any Kind of Animal, but more especially a Horse, whose very Nature requires Abundance of it; (if he has his full Feeding;) for, by Exercise the Blood is not only forced thro' the smallest Veins and Arteries by the several Contractions of the Muscles; but all the little Glands and Strainers of the Body are thereby forced to throw out and discharge their several Contents, which certainly must be a great, if not the greatest Means to preserve Health. And this Preservation ought to be continued, in Proportion to a Horse's Strength and Manner of Feeding; for one of these Creatures, of a delicate and tender Make or Constitution, cannot bear much Exercise, nor should such a Horse's Airings be violent but gentle, and by this Management he may perform Work enough for most Men's occasions, tho' I must own he would not suit my Taste or Business.

C H A P. III.

Contains some general Rules to be observed in Bleeding and Purging Horses.

I Have, in the foregoing Chapter, taken notice of some Errors committed in Bleeding and Purging, therefore I shall, in this, lay down some general Rules to be observed in these Operations.

And first, I say, Bleeding is the most ready, as well as the most useful Operation, for relieving any Creature in Sicknes, or diseased, that can possibly be performed: For by this the most immediate Relief is obtained, seeing that by it the fierce *Ætus* or Heat of the Blood, together with it's Velocity, is restrained and abated; and not only the Heat and Velocity, but likewise it's Viscidity or Clamminess, may, (in some measure) be destroy'd. Therefore in all Cases, where the Blood is too much agitated and in Motion, or where it is thick and fizy; I say, in these and such like Cases, this Operation is of Service. But I shall lay down some particular Directions which more especially require Bleeding, and, in doing this, I shall not tie People down to particular Times or Seasons, or the Influences of the Planets, tho' indeed the old physical Writers put great Stress upon the last of these, notwithstanding they were ignorant of natural Philosophy, a Science so essentially necessary in the Cure of Diseases either in human or Brute Creatures. I do not deny, but in several Cases the Planetary Influences upon the Fluids of the Body are exceeding wonderful; and these Operations the learned Dr. Mead has fully explained, in his *Treatise de imperio Solis et Lunæ*: But
this

this Gentleman's Way of splitting Hairs is too tedious a Task for me to venture on at present; neither would the same (in my Opinion) be either edifying or instructive to the greatest Part of my Readers. Therefore I hope to pursue my first Rule and Design, which was to publish this Book with all the Perspicuity and Plainness imaginable.

Bleeding to
be avoided
in extreme
Cold or Hot
Weather.

And first, Bleeding ought to be avoided (if it can with Safety) in all Extremities of Heat and Cold, and the Signs which require it are a Plethora or Overfulness of the Blood-vessels, and this may be discovered by a Horse's being purfivè when he's put to any Kind of Exercise, that is if he be not actually Asthmatick, (or Broken-winded, as the Farrier's Term goes;) and even in this Case Bleeding wonderfully relieves a Horse's Breathing, by lessening the Quantity of that Fluid with which his Lungs are so inflated and blown up.

Secondly, Blood-letting is requisite and necessary in almost all Fevers whether Simple or Complicate, that is to say, whether the Fever consists in an augmented Velocity or Quickness of the Blood's Motion, or when the Blood is (along with this increased Motion) vitiate or corrupt. But care should be taken to form a right Judgment of the Distemper: For, if it have its Origin from Want of Blood and Spirits, as is frequently the Case, after large *Hæmorrhages* or accidental Losses of Blood; or after long Scouring, or too plentiful Evacuations of whatsoever Kind; or when a Horse has for some time been in a wasting or declining Condition; I say, in these Cases (altho' some Indications or Signs may shew Bleeding proper) yet it ought to be practis'd with the greatest Caution and Circumspection; and, if Blood must be taken away, it ought only to be done sparingly and in very small Quantities.

Thirdly, I would have the Farrier always remember this General Rule, to wit, that *Bleeding is requisite in all Impostumations or Gatherings of corrupt Matter in any Part of a Horse's Body, and more especially when such Swellings are situate upon the Glands or Kernels of the Throat, or when they endanger Suffocation, or any other evil Accident*: But if the Farrier is consulted too late, I mean if he's only called when the Horse has been ill for several Days, and that there is a Tendency to Suppuration, or coming to a Head, as 'tis vulgarly called: I say, in this case Bleeding is not to be used, because by so doing we oppose Nature, who is at this time endeavouring to throw off the Enemy another way. But in Swellings of the Legs, occasioned by the Grease (as 'tis called,) Bleeding may be serviceable, especially if it be used in the Beginning of the Disorder; for by this Help Revulsion or a forcing the Humours to a contrary Part, is performed, and when this is effected, then 'tis necessary to purge the Horse, in order to carry such Foulness off by the most proper Outlet: For, what signifies

signifies causing a Revulsion, unless you afterwards free the Horse's Body of what's oppressive and burthenfome to Nature: For if the peccant Humour happens (by Bleeding) to be translated from the Extremities, 'tis ten to one but some more noble Part is affected by it, unless special Care be taken to purge it off in the most judicious Manner.

I have said, that Bleeding is proper on Account of Swellings in the Legs, occasioned by the Grease, provided it be used in the Beginning, and before they are too much inflamed, by reason this Distemper at first chiefly proceeds from a Stagnation or undue Circulation of the Blood in these extreme Parts, where the same loses a great deal of its Force, by reason of the Smallness of the Vessels, and the Distance from the Heart. And I hope (in the Sequel of this Discourse) plainly to make appear, that this undue Circulation is mostly the Cause of the Grease, which is contrary to the Notions of former Writers, who imagined that in such Cases the Blood was full of Impurities and Corruption, as they idly term it.

Fourthly, Bleeding is requisite in any violent Pains, inwardly or outwardly, or as the Physicians write, Internal or External, as Wounds or Bruises, and Pain and Inflammation of the Lungs or Pleura, which is the Noble and Sensible Membrane that covers all the Cavity of the Thorax, or Chest in Horses; or in Inflammations of the Liver, when they can be discovered; and I shall do my best to inform the Reader, how he may distinguish each of these Kinds of Inflammations, when I come to treat of the Distempers of the Breast. Though, notwithstanding what some Gentlemen have writ about Pains in the Stomach, Lungs, Liver, Pancreas or Sweet-Bread and the like, I must own it a very difficult Task to discover the Seat of internal Pains in Horses.

Fifthly, Bleeding is proper, in most, if not all, Disorders of the Head; such as Vertigo's, commonly called the Staggers in Horses; and in the first Stage or Beginning of Colds, by which Desfluxions of Rheum are apt to fall upon the Lungs, and oftentimes the Eyes. Several former Authors forbid Bleeding in Diseases of the Eyes, particularly the *Sieur de Solleysell*, who no doubt has made the Remark from his having seen some ill Effects of it in such Distempers: But the Question is, whether this Gentleman form'd a right Judgment of particular Cases, and duly weigh'd and considered all the Symptoms together? For if a Horse be Lean and out of Order, that is, when the State of the Blood is very low and poor, and the Heart scarce able to drive it round the Horse's Body, why, then indeed it is most likely to stagnate or stop in the Extremities, and small Capillary or Hair-like Blood-Vessels; because the succeeding Fluid is destitute of force to impel or drive forward the antecedent Part of the Blood: And this no doubt

Bleeding
proper in
swell'd Legs.

Bleeding
proper in
violent
Pains.

doubt is true Doctrine, since by taking Blood away, we take away from its Force or Momentum, which in the Case described is already too small, and therefore Bleeding may sometimes (as *Solleyfell* has observed) occasion Disorders of the Eyes, if not absolute and total Blindness. But then in all Overfulness of the Vessels, from hard-riding, or from whatever Cause, which drives the Blood into the Extremities faster than it can be returned by the small Capillary Vessels, or if the State of the Blood be too viscid or clammy, by which Means it loiters in the small Vessels of the Eye-lids or Body of the Eyes, Bleeding must then be of Service, and from the same Theory it may be proper in the Parcin, and other Diseases of the Skin.

Lastly, the Horse's Age should be considered: For a young Horse, though he be more subject to Diseases than an old hardened Stager, yet he will sooner recover the Loss of his Blood; and in my Opinion, a Horse in the Prime of his Years, will of all Ages withstand such Evacuation best: But as to regulating when and at what Age a Horse may be said to be in his Prime, it is very uncertain, and must only be learned from such or such Breeds of Horses; for, there is (to my own Knowledge) as much Difference in this Particular with relation to the Prime of Age in Horses, as there is in Man, and there are as long-lived, stout and hardy Generations (comparatively speaking) amongst these Creatures, as amongst Mankind; and on the contrary, some are old whilst they are yet young, (if I may be allow'd the Expression.)

The Reason
why a Horse
is not Sick
in Bleeding.

The Reason why a Horse is not subject to Sicknefs and Faintings during the Operation of Bleeding, is because of his prone and Horizontal Posture, which does not require so strong a Systole or Contraction of the Heart, in order to throw the Blood round the Body, as it would if in a perpendicular Situation. This is plain to any one who has the least Notion of Mechanicks; and for the same Reason a Man will lose twice the Quantity of Blood lying upon a Bed or Couch, without being sick, than he can in an upright Posture; which Truth was well known to our famous *Sydenham*, although this great and faithful Observer was very much wanting in Mathematical and Mechanical Knowledge, so that he could not share the real Pleasures of those who have a *Why for a Wherefore*.

I shall now proceed to shew in what Cases Purging may be necessary, and then give an Account of those Fevers in general which infest this poor useful Animal.

Purging
how brought
about.

Purging, I say then, is brought about by such Medicines, which by their Irritation provoke and stimulate the Membranes of the Stomach and Guts, whereby the Peristaltic or vermicular Motion of the latter is quickened, so as to shake or throw off their Contents: But if the Dose happens to be too large,

or

or abounds much with Refinous Particles, which of all are most pricking and stimulating, or (to speak after the common Way) if very strong Physick be given, it not only carries off what is contained in the Stomach and Guts, but likewise causes such reiterated and frequent Twitches, as derive a more than ordinary Quantity of Blood and Spirits into those Parts, whence is separated and discharged Abundance of the Serum or watery Part of the Blood, by the common Passages. And from hence it is evident, that a Medicine may be so contrived, as to carry off more or less of the Substance of the Blood, according as the Dose is increased or diminished, or as it abounds more or less with purging Particles, and consequently may be rendered profitable or hurtful.

It is needless to detain the Reader with the Manner of preparing the Body for this Operation; neither shall I lay down Rules for rendering this or that Sort of Humour fit for Discharge by Medicines, which have, with much Industry and more Ignorance, been devised to prepare Choler, Phlegm, Melancholy, and the like whimsical imagin'd Humours; that Sort of Practice being now justly exploded as ridiculous and uncertain; since it is plain, that all Kinds of purging Medicines differ only in Degrees of Strength, and operate no otherwise upon different Humours, than as they stimulate more or less, and either work no farther than the *Prima Via*, or first Passages, or else cause a Discharge from the Parts more remote from their Scene of Action, which principally lies in the Stomach and Guts. And what particular Regard is to be had to the different Kinds of purging Medicines will, I hope, be sufficiently shewn to the Reader's Satisfaction in the Sequel of this Treatise, when I come to treat of Distempers which may demand Purging. And therefore at present, I shall only lay down some general Directions, which may be of use to all those Gentlemen who keep valuable Horses. And

First, I say, Purging is necessary in most or all Plethorick Cases when there is a Redundancy of Blood, but the Horse should first of all be bled to render his Body cool and light-some: For, if he be purged when his Body is full, it may, (unless the other Secretions are free) I mean the Discharges by Urine, &c. occasion (during the Operation) a too great Hurry in the Motion of the Blood, or by driving or forcing off too great a Quantity of Blood, &c. into the Intestines or Guts, an Inflammation may ensue. And for this Reason it is judged proper that those Horses, which are Plethorick or full of Blood, should only have mild and easy working Purges given them.

Secondly, Purging may be allowable in Disorders of the Stomach, before other Things are administered, and this, because a Horse can seldom or perhaps never disgorge himself by Vomit.

Purging proper in Disorders of the Stomach, and foulness of the Guts.

Thirdly, of the Guts.

Thirdly, it is proper in all Foulnesses of the Guts, for driving out all viscid and slimy Matter, and particularly when a Horse is troubled with Worms, provided the Purge consists of such Ingredients; as I shall hereafter mention, when I come to treat of this common though troublesome Reptile, which afflicts most Horses sooner or later. And furthermore, Purging may be necessary in Costiveness, and in several kinds of *Diarrhæa's* or Loosenesses of the Belly; but these likewise must consist of well adapted Ingredients; *viz.* such as after Purging in a gentle and easy Manner, constringe or leave a binding Quality behind them, so as to shut up, in some Sort, the excretory Ducts of the intestinal Glands: Yet great Care must be taken in this Matter, lest by improper Purges, the Glands should be so relaxed as to bring on an Inflammation of the Guts, by the too violent Operation of the Medicine.

Fourthly, and Lastly; I recommend Purging as useful in gross Habits, where there is any Tendency to swelling of the Limbs, or any other Part of the Body; in humid and watery Diseases; in Disorders of the Liver, causing the Jaundice (or Yellows in Horses;); in Diseases of the Eyes and Head, where there is not any Fever, but only a Stagnation of the Blood, in some of the small Capillary or Hair-like Vessels; for Putging, in such Cases, not only drains off Part of the superabundant Matter, but also (by putting the Blood in a brisker Motion) causes a Separation of its grosser Parts; so that it moves with more Ease and Freedom through all its Canals; and by this means is brought more readily to the secretory Offices, or particular Outlets, designed by Nature to throw off the excrementitious Parts of Nourishment.

In Bleeding
and Purging,
the Strength
of a Horse to
be consider-
ed.

I must not, however, close this Chapter, without acquainting the Reader, that in Bleeding and Purging, a particular Regard must be had to the Strength of every Horse; by Reason (in the last Case) the Irritation, or pricking and convulsive Twitching, which many Kinds of Purges occasion, (during their Operation,) brings on *great Sickness, convulsive Motions of the Body, damp Sweats; &c. which too often end in Death.*

A Horse is with much more Difficulty purged than a Man, because of their prone or horizontal Posture, which helps nothing towards forwarding the Medicine; therefore the Physick lies mostly twenty four Hours in his Guts, before it operates. And, for the most Part, the Purges given to Horses consist of such Things as are of a resinous Quality, and these, of all other, are most subject to cause violent Gripings, cold Sweats, &c. for as they are ordered mostly without any Mixture to qualify this Property, it is much, so many Horses get through their Physick every Spring: And I rather attribute it to the Strength of the Horses Constitution, than to any good Judgment in their Farriers, or common Keepers of galloping Horses. For there

is no doubt, in the least, but the same general Rule will hold good in purging Horses, as it does in Men; I mean, the *Idiosyncrasy* of Bodies is to be first (as much as may be) studied amongst these Creatures: And this Knowledge of the peculiar Temperament or Disposition of this or that Horse, with relation to his being easily or difficultly wrought upon by any Kind of Medicines, will, I am convinced, be the greatest Guide a Farrier can follow. And this Disposition may, in some Measure, be learned from the Horse's Constructure or Make, the Firmness of his Flesh, &c. for those Horses which are kept at hard Meat a long Time together, and get pretty well of Exercise along with it, are (it is very well known) most difficultly purged, by Reason they have fewer Juices to work upon, than a gross fat Horse, who has little or no Exercise.

Consider the
Idiosyncrasy
of Bodies.

I have given these loose Hints about bleeding and Purging, before I enter upon a Discourse of the Distempers incident to Horses, as the same was necessary to be consider'd by all Farriers, and is, or ought to be, one of the Fundamentals of their Practice; I mean this, *viz.* that every Farrier, should rightly and duly weigh each and every Symptom or Token of Sickness in a Horse, and consider well, whether he requires Bleeding, or Purging, or both; and not; (as is too common,) strike his Fleams into his Neck, or toss a Purge into his Stomach, *hab nab* at random, which may very likely go near to kill him, when performed without due Caution. But what relates to this, and all other Operations, both manual and other, will, I hope, be fully and clearly laid down in the Sequel of this Book, to the Farrier's Satisfaction, as well as of all Gentlemen, who admire good Horses. And I shall do my utmost, to apply all general Rules as justly and methodically as possible.

C H A P. IV.

Of the Strangles.

AS this is, for the most Part, one of the first Distempers that young Colts are subject to, I judge it proper to be first treated of; after which, I shall enumerate the different Kinds of Fevers, to which Horses are liable. And

First, I say, the Strangles is a Swelling under the Throat between the Jaw-Bones, and seems not to differ (in any great Degree) from what we term the Quinsy in human Bodies; tho' it is said; that the Seat of the Strangles is not so much upon the Glands as upon the Muscles, and therefore it proceeds sooner to Impostumation, or Gathering, (as it is call'd;) neither is it thought there is so much Danger in the Strangles in Horses, as in a Quinsy in human Bodies, by reason the Muscles of the La-

rynæ,

The Strangles compared to the Small-Pox.

rinx, or Wind-Pipe, are not so much afflicted in the first, as in Man: For in Horses, the Muscles of the Tongue seem only to be touched with the Distemper, and therefore it is, that the Matter comes naturally to have an external Discharge.

I have said, that young Colts are most subject to the Strangles; and, as I remember, Monsieur Solleyfell, the French Farrier, compares this Distemper in Colts, to the Small-Pox in Children, and he has taken Notice, that few Horses are troubled with it above once in their Life, unless the Matter of the Strangles has been imperfectly cast off, and that then indeed, it generally returns at Six, ten, or twelve Years of Age. This Author farther observes, that the Morbific or offending Matter, is sometimes cast off by the Limbs, and other Parts of the Body, and more especially by those Members that have been any way hurt or weakened; for the Humour or Matter of the Disease, by Translation, soonest affects the weakest Parts.

The last Author mentioned was very meanly skilled in the Anatomical Structure or Make of a Horse, although he was a very diligent observer of all manner of Accidents to which that Creature is liable: If therefore he had been better acquainted with Anatomy, his Accounts might have been edifying as well as more instructive to his Readers. For although this Distemper of the Strangles be near allied to an external Quinsy, as to its Situation, and also in many other respects; yet, no doubt, as it mostly happens to Colts, it may, (not without Reason) bear an affinity to the Small-Pox: For, as the Blood of young Horses may reasonably be supposed equally Fluid, having not as yet been sufficiently comminuted, or divided by frequent Circulations, therefore, while they are in this imperfect State, they are rendered more liable to Diseases; and when these happen, they fuse and melt the Blood, or purify it from its Viscidities or grosser Parts, by some proper Out-lets or Discharges, which are answerable to those by which the Small-Pox are thrown out and discharged in human Bodies. But as the Small-Pox breaks out in little Pustules, or Bladders full of Matter all over the Skin, wheresoever the Vessels are smallest, and where the Blood is most apt to stagnate or stop; yet because the Blood-Vessels in Horses are considerably stronger and thicker than in our Bodies, therefore these Impurities cannot so readily be discharged in the Manner aforesaid, but break out in boils and Swellings in the Neck, &c. And I hope this Account may satisfy every impartial Reader, why Colts are more subject to the Strangles and other Impostumations, than those Horses which are arrived at a more mature State.

I would be understood under this Head, that most Colts (though not all) have the Strangles before they arrive at Six Years of Age; yet, I will not say but the Distemper may be sooner or later brought on by Colds, or other Mismanagement in

in keeping: And I must own, that although I have bred several Colts my self, yet not one, to my Remembrance, ever had the Strangles; and this I attributed mostly to their being kept warm in Winter with good Meat, &c. And though this *Theory* seems to contradict what I just now advanced, *viz.* that the Distemper called the Strangles, seems implanted in the very Nature of Horses, yet, I imagine the Seeds of it do not always meet with a proper Nidus, so as to propagate the Strangles, till such Time as the young Horse has contracted (what we call) Colds, or in better *English*, 'till such Time as by the Constipation, or shutting up of the Pores by the Violentness of the Seasons, inasmuch that the requisite Perspiration is impeded, and proper Ferment produced, which brings forth the Distemper mentioned. And this is not a very ill grounded Hypothesis, if it be considered, (as is really the Case with several Kinds of Seeds,) how they will lie in the Earth Scores of Years together, without producing any such Thing as a Crop, 'till such Time as the Ground be dug up and husbanded, and then indeed you shall have Turneps, Mustard Seed, and such like, without sowing one Grain; nay, although the same Ground has not been turned over for a hundred Years before. And of this Fact I have been an Eye-Witness, (so far as my own Memory could inform me;) and it is well known in the Field-Country of *Lancashire*, that as sure as any Person throws up a new Ditch, so sure he will reap a fine Crop of Mustard-Seed, without strewing any upon the Ground before hand.

Mr. Ray, in his Natural History of Plants, has said enough to convince any unprejudiced Person of the aforesaid Truth; and I have dwelt the longer upon this Matter, by reason of the great Analogy there is between Plants and Animals, with relation to a great many inward as well as outward Distempers: And this, if my Time would permit, I could with great Reason make appear. But I must proceed to my Subject-Matter.

I say then, so soon as it is perceived that a Colt, (or it may be a Horse of riper Years) has the Symptoms or Signs of the Strangles upon him, and that the same has a Tendency between the Jaws, (as is most common, from the dependant Situation of the Head,) and that the Passages of the Gullet and Wind-pipe are not endangered, the safest Way is to ripen the Swelling, and bring it to suppurate, or burst by warm Cloathing, and Applications which soften the inflamed Parts. For Example; the following excellent Poultice is proper to bring the offending Matter outward, and thereby prevent Suffocation, or other evil Accidents, attending the Larynx and Pharynx, or Muscles of the Wind-pipe and Gullet.

Take Leaves of Mallows and March-Mallows (either green or dry,) each ten Handfuls; white Lilly-Root, half a Pound. Boil
VOL. I. C An Excellent Poultice for the these Strangles.

these very soft in Water, and press them out strongly; then take Lin-Seed and Fenugreek-Seed, each four Ounces; bruise them, and boil in two Quarts of Water slowly, 'till it become of a mucilaginous Consistence; after which, stir and beat it up well with the Leaves and Roots; then add four Ounces of Ointment of Marsh-Mallows, and one Pound of rendered Hogs-lard; mix well, and keep for Use.

This is a most incomparable Cataplasm or Poultrice, in several Cases, besides what I have mentioned, when Nature is, as it were, desponding, and cannot throw off the Load of Matter, which causes the Distemper of Swelling, seeing that by its genial Warmth (for it ought to be applied pretty warm) it comforts the stretched Fibrillæ or animal Threads, which are distended beyond their natural Tone or Dimensions by the Influx of the offending Matter, and also greatly contributes to thin the Skin, by its mollifying and softning Quality. So that these two principal and great Ends are answered by the Application of the aforesaid Poultrice, *viz.* bringing Relief to the distended Fibres, and also thinning the Skin and muscular Flesh; inso-much that the fluctuating Matter may with more Ease be felt by the Finger, than it otherwise would be. In fine, I cannot say too much in Praise of this Cataplasm, whose Virtues are so unparalleled by any other I could ever contrive; (I mean in relation to tumified or swelled Glands in any part of the Body;) and I have known it used by my Direction, to Horses in the Strangles, which have received great Benefit from it. The Manner of applying it is upon a double Cloth, very thick and pretty warm, always adding a fresh Poultrice as the old grows dry.

If the Tumour breaks, the Wound may be dress'd with the Ointment under the Title of the Farrier's Ointment, spread warm upon Tow, or such like, and the Poultrice over all: For you must remember to keep this going on 'till all the Glands are fallen, or come to their natural State and Bigness; otherwise, it may happen, as I have often observed, that for want of using the Poultrice (or some such Application) the Glands have been so indurated or hardened, that they would not yield to any Thing but Extirpation or cutting out, and would turn out like a boiled Turnep or Potatoe, upon giving the Skin a cross Incision or Cut, and pulling them out with one's Fingers. Or for want of this Operation, the Horse has been big and swelled about his Jaws during the whole Course of his Life.

I advise to lay all sinuous or hollow Wounds or Ulcers open, as far as possible, without Danger to the Blood-Vessels, Nerves, or Tendons, and to make the Incision according to the Direction or Length of the Fibres, that is, you ought not to cut across the Muscles, or Leaders, (as they are called by Farriers).

The

The Dressings, after Incision, should consist of those Things which are of a deterfive and mundifying Quality, such as are all the Kinds of Turpentine, which I shall have occasion to speak of in the following Pages. These incorporated well with Honey, Yolks of Eggs, &c. as I shall describe under the Name of the black digestive Ointment, along with the Farrier's green Ointment, and a few Mixtures, mostly spirituös, I believe will be sufficient for most or all Wounds, both recent and green, as well as those which, through bad Management and length of Time, are grown sinuous or hollow, and therefore difficult of Cure. Proper Ointments for Wounds.

Of a contrary Quality to Turpentes are all Kinds of Oil, Hog's-Lard, &c. with all the Tribe of unctuous, oily, and greasy Applications, such as, (for the most Part) Farriers are wont to apply to Wounds: For these greasy Applications are very pernicious, by reason they occasion Fungous or proud Flesh, and likewise foul the Bones, Tendons, &c. where the Wounds are deep; therefore I would advise all Gentlemen to toss such Compositions out of their Stables, as detrimental. Indeed there is some Butter ordered in my Farrier's Ointment; but the Thing could not be made any way lower, or of an easier Kind, than the black digestive Ointment, without it; and besides, *May-Butter*, when Cows are at Grass, partakes of a fine mundifying or cleansing Quality, far before Hog's-Lard, or such like. And this I have many Times experienced to my Satisfaction.

Tents are also pernicious in most Cases, for they occasion the Flesh to grow callous, or hard and horny; and this is what is meant by the Wounds growing Fistulous; and 'till this Callosity, or horny Part, be destroyed by Knife, Fire, or corrosive Powders, there is no such Thing as healing the Wound; and on this Account it will discharge a nasty, stinking, sanious Matter, while the *Horse* lives.

Mr. *Gibson* (in his Book of Farriery) is very tedious and prolix in treating about the Cure of the Wound, when the Matter of the Strangles runs off; but he might have said as much to the Purpose in a few Words, *viz. Keep the Horse's Body, and especially his Throat, warm, and dress the Wound with some good digestive and warming Ointment; and apply a softening Poultice thick and warm over all, 'till such time as the Glands or Kernels are fallen, and the Humour dispersed*: But this is not brought about but with great Care and Patience: For in all the Swellings either in Human or Brute Creatures, none are so tedious and difficult of Resolution (or being dissolved) as Tumours or Swellings of the Glands, and this by Reason of the Coldness of their Nature (if I may be allowed the Expression;) for the Blood, &c. or rather Juices, make so slow a Circuit in the Glands; in Comparison to what it does thro' the other (mostly rectilinear) Canals of our Bodies; that these Swellings, from

Tumours of the Glands hard to be dissolved.

want of Heat, (which Philosophers know consists in Motion,) are of slow Procedure.

I have said thus much in relation to the Strangles, which I hope may be sufficient: For in this Chapter, as well as the following, I shall not trouble the Reader with long Accounts of Things, which would rather puzzle and incumber his Memory, than any way tend to his Information. Therefore I now proceed to say something of the *spurious or false and Bastard Strangles*.

CHAP. V.

Of the Bastard Strangles.

Monsieur Solleyfell, as well as our own Countryman Mr. Markham, has accounted for the Bastard Strangles in a very odd kind of Manner.

These Authors imagine, that when the Matter of the Strangles is imperfectly carried off, that there remains a latent Ferment in the Blood, which, in its proper Time, will agitate the Humours, and cause them to fall upon the same Place where they should have been before cast off. And this, they say, may sometimes happen five or ten Years afterward, when a Horse is ten or fifteen Years old. Indeed, at first Sight, and to most illiterate People, who have no other Notion of Things, than as they quadrate or suit with the outward Senses, this seems sound Reasoning; but it is all Bombast, nonsensical Stuff: For it is well known there is no such Thing as Fermentation in the Blood, nor in any other Fluid, which flows with the like Celerity; because this celerity manifestly hinders that Intestine Motion, so absolutely necessary to produce Fermentation. But really, it is no easy Matter to fix Boundaries to this Term; for under it some are for reducing almost all that belongs to Phisick, chiefly as it is a Term that accounts for, in the Lump, many Phænomena, and saves a great deal of Trouble, by saying such an Effect is occasioned by Fermentation. However, it so far concerns every Body to have some just Apprehension of what this Term ought to express, that I cannot be at too much Pains to explain it. Insomuch as it regards Medicine, and ex-

Fermentati-
on explained.

alting or destroying any Properties therein, we cannot have a better Idea of it, than by understanding all which concerns the procuring a spirituous Liquor from Corn. First then, in the Grain itself must lie the Materials of what makes the spirituous Part, because nothing else (besides Water) is concerned in it. To this Purpose, therefore, it is soaked just so long, in a Cistern of Water, as is sufficient to loosen or open its natural Texture; after which it is thrown in a Heap, where it is suf-
fer'd

fer'd to lie, 'till by the Motion of its more fine and volatile Parts, it begins to heat and shoot out, as in Vegetation or Growth in Plants. But to confine these Parts from flying off, by too long a Continuance of such intestine Motion, it is thrown abroad thinner, and expos'd more and more to the Air, 'till it contracts almost a Dryness, which is finish'd by the Kiln, and all its Parts maintain'd together, but yet in so lax or loose a Condition, as very easily to open and unite with warm or hot Water: For by the Sweetness and Consistence of the Wort, and Lightness of the Grains, it is plain that the whole Substance of the Kernel is intimately mixed with the Liquor.

After this Apparatus, to finish the Process, and raise from it a strong Spirit, the rest is done by Fermentation with Yeast or Barm. But to explain how Fermentation is mechanically effected, and how it brings forth such a Spirit, would take up too much Room in this Place; however, such Effects are very conceivable, if the Reader has the least Notion of Hydrostaticks.

I could, under this Head, account for the different Changes Bodies undergo under a State of Corruption, which is one Species of Fermentation. But with all these Requisites to this intestine Motion of Bodies, very little thereof can take place in circulating Liquors, such as the Blood, &c. How much soever this Term therefore is made use of to account for several Appearances in Animals, it must be from mere Ignorance, or on purpose to deceive. For thus far only can their Juices be capable of Fermentation, as they are remitted in their circulatory Motions enough to make the natural Attractions of their Particles greater, than the Force by which they are impelled or driven forward, which cannot be but where they are almost entirely stopp'd. And it is therefore in the larger Glands only, that the separated Juices may undergo some Motions of this kind, so as sometimes to be changed thereby from their natural Properties: But the Blood (while in its Circulation) cannot undergo such Influence, because the Velocity of its Parts from the impelling Force is too great to let them obey their Attractions of one another. How remote from Truth then must those Reasonings be which are built upon such a Foundation, I mean such as build their Faith upon imaginary Notions of the Blood's being in a Ferment, (as the common Expression goes;) and how hazardous must a Practice be which flows from such a *Theory*?

I have been more tedious with relation to the aforesaid Term than ordinary, because it will, I hope, save me farther Trouble in the Sequel of this Book, when I come to treat of Fevers which (according to the common Notion) are occasion'd

thro' a Fermentation in the Blood. Therefore I beg the Reader will excuse the Prolixity: But to return.

When Swellings, like the Strangles, happen to old Horses about their Jaws and among the Glands or Kernels of the Throat, it is an infallible Sign of a crazy Constitution, and often is a Forerunner of the Glanders, unless such Swellings are occasion'd by some violent Colds, or hard Usage. And really the same Disposition may be observ'd in human Bodies; for if these happen to be of a tender and delicate Habit, or consumptive, the glandulous Parts are often tumified and swell'd, as well these in the Throat, call'd by Anatomists the *Parotides*, as those in the *Mesentery* or Cawl; and of this Truth I have been many times convinced in the Course of my Practice and Dissection of Bodies.

Purging
proper in
gross Habits.

Lastly, In all Cases where there is a gross Habit, with a Tendency to Swellings in the Limbs, or any other particular Part of the Body, *Purging may be necessary*; as likewise in humid or wat'ry Diseases, such as tend towards a Dropsy of the Belly, &c. In Disorders of the Liver, causing the Jaundice, and in the manifold Distempers of the Eyes, but more especially when they proceed from Rheum: For really in dry Blindness, as 'tis call'd, I am sure it cannot be of Service; and when I come to treat of the Diseases of the Eye, I hope to do it in such a Manner as that the World will be convinced of the Soundness of my Doctrine, which does not consist in Hypotheses and Chimerical Notions, but is founded upon the strictest Anatomical Observation and Experience.

I say purging is proper in the Diseases abovementioned, by reason of the Revulsion or calling back the Humours from those Parts: It may likewise be proper in most Ailments of the Head, where there is not any Fever, but only a Stagnation or Stopping of the Circulation of the Blood in some of the small Vessels. For, Purging in such Cases puts the Blood into a more brisk and free Motion; not (as some pretend) by carrying off any offending Matter, for that is impossible, (as shall be shewn hereafter;) but by causing an uneasy Sensation, and irritating the Glands of the Guts, and thereby obliging them to throw off their Contents both good and bad. This, I say, makes what we term Revulsion; as also better fits the Glands to perform their Office of Secretion, not only in the Mesentery or Cawl, but quite thro' the whole Body (if the Purge be prepar'd as it ought) when a Horse can bear purging. And I might under this Head plainly shew, how ridiculous it is for any Person to imagine that a Purge carries off this or that particular Humour, any more than that the Blood can be freed from the most offending Part of it by Phlebotomy, in every or any Case whatsoever. And altho' I am convinced that what I am now writing is in direct Opposition to the
common

common receiv'd Opinion; yet I doubt not making it plain as the Sun at Noon-day, viz. that Purgings is only making Revulsion in a particular Manner, and that the Good it produces flows from a different Spring than what is commonly thought.

CHAP. VI.

Of Fevers.

MOST Authors who have treated of Fevers in Horses, Of Fevers. have defined such Diseases under a preternatural Heat of the Blood: and the French Farrier, Solleysell, has in particular compared "a Fever to the Ebullition or working up of Wine (for they have little Malt-Liquor in France,) in a Cask, where the same being agitated, heated, dilated and fermented, and having no Vent, breaks impetuously through all Obstacles, spreading its Steams and Vapours all around; and appears so muddy, that we cannot discern the least Drop of Wine in the Vessel. But after these disorderly Motions, all the Impurities that were in the Wine, are separated; the Lees fall to the Bottom, a sort of Scum floats on the Top, and the Concavity of the Vessel is covered with a sort of crusty Substance." Thus far Mons. Solleysell, who, though he was one of the better Sort of Farriers, by way of Reasoning, yet he was far wide of the Mark. For first, I insist upon it, that there is no such Thing as Fermentation in the circulating Blood although I own the Translation of Morbific Matter in Fevers shews something very like it, viz. That after the Blood's Ebullition, it throws off the offending Matter in Tumours and Eruptions much in the Manner of the Sediments of fermented Liquors. Yet, notwithstanding this Appearance suits so pat with our outward Senses, it is far from Truth; I mean, to imagine that there is a Possibility of the Blood's Fermentation, (any otherwise than as I have before described under this Term;) and if it only happens in the Manner I have pointed out, there is no Doubt but all the Effects, such as Tumours, Eruptions, &c. may follow a Fever as well every Whit, as if there was such a Thing as Fermentation in the Blood.

In my Opinion, as well as several who have gone before me, A Fever ^{defined.} a Fever is an augmented Velocity of the Blood; and the almost infinite Variety of Causes of this Distemper, does so diversify its Appearances, and indicate so many Ways or Methods of Cure, that really it is no easy Matter to write down Rules, for the Management of Horses in such Condition. However, I shall attempt it in the most concise and best Manner I am able.

First, then the Blood (as all other Fluids) being composed or made of Liquid Parts, is therefore capable of being put into a more than ordinary Degree of Motion, both by external and internal Causes. When the Cause happens to be simple and external, as for Instance, when the Blood is violently agitated and put into a Hurry by the Heat of the Sun, or by violent and excessive Exercise; I say, in such Case the Fever will be only of the Symptomack Kind: For in such Case the Blood is fused or melted like Wax, and consequently requires more Space in the Vessels, than when in its ordinary State; and likewise as it becomes more thin and Fluid, its Motion increases, which is obvious enough, by reason all thin Liquors move with more swiftness, than those that are thick. Add to this, the Compression the Blood meets with (when in this State) from the Sides of the Vessels, &c. which is in Proportion to the Degrees of Fusion or Thinness. These Kinds of Fevers are regular and uniform: But when a Fever proceeds from any ill Quality in the Blood, as when it is too viscid and thick, occasioning Obstructions in the Vessels which are smallest; I say, the Blood being obstructed there, and meeting with such Opposition, must needs occasion great Disorders, especially while it flows in a greater quantity than ordinary into any particular Part of the Body, and while it endeavours to find out proper Vents and Passages for itself. Now in both these Cases, the Glandular Discharges must in a great Measure be hurt. But in complicated Fevers, some of the excretory Ducts or Pipes, by which the Glands discharge themselves, may be too open, whilst others are obstructed: And hence it is, that Nature is so much put to it in Fevers of every Species and Denomination; for in those that are most simple, she is overpowered by a too great Quantity of Blood, occasioned by a too great Rarefaction as aforesaid, whereby it takes more Space in the Vessels than usual, and moves with so much Rapidity, as to discompose the whole Body. Likewise in those Fevers, proceeding from vitiated Blood, she is oppress'd by violent Impulses and irregular Discharges, before the Blood, &c. can become of such a Texture, or Make, as to render it fit to pass equally into all Parts; and therefore, it is observable, whatever Changes the Blood undergoes in all the different Kinds of Fevers, that so long as the Disease lasts, these Changes must have a Tendency, either to an over-great Rarefaction or Thinness, or else to over-great Thickness and Viscidity of the Blood.

A Fever
may proceed
from an In-
equality of
the Sub-
stance of
the Blood,

A Fever may likewise proceed from an Inequality of the Substance of the Blood, whereby some Parts of it pass more easily than others through the smaller Vessels. I say, this may produce the Symptoms common to Fevers; as violent and excessive Heat and beating of the Arteries, &c. and this is so clear

clear and evident, that it needs no manner of Proof, since Heat must always be the Effect of Motion.

Some former Authors (and those of Note too) have taken infinite Pains, to shew the different Kinds of Fevers from rarified or thin'd Blood, as also those arising from viscid and thick: But in my humble Opinion, though I have considered them over and over again, they only argue to shew their Learning: For the *Ætiology* or Doctrine, teaching (or rather pretending to teach) us the Knowledge of the Causes of Distempers, is a dark and abstruse Doctrine; and really it is no easy Matter to shew, how many F—ts go to an Ounce. Yet the Reasoning and Arguments of many upon the aforesaid Term, amounts not to a quarter Part of what's pretended; nor can such in any Manner or Shape, edifie or improve our Understanding; since it only consists of unintelligible Metaphors which rather puzzle and perplex the Reader than otherwise. Indeed I own that the Art of Medicine is brought at last to very great Perfection, and many Things proved plain to a Demonstration: But I think, with Submission, that these Improvements and Discoveries go no farther, than shewing us *the Force and Manner of Operation of Medicines*. And in this part of Knowledge, there is no Doubt, but Natural Philosophy has the greatest Share. I shall therefore shun, as much as in me lies, all dark and abstruse Reasonings, as well as unintelligible Terms, and so proceed to give my Opinion upon what is called a Simple, or rather Symptomack Fever.

C H A P. VII.

Of a Symptomack Fever.

I HAVE explain'd, under the Sixth Chapter, what I mean Symptomack by a Symptomack Fever, *viz.* that it is a Fever proceed-^{what.}ing from Accidents, rather than any noxious Quality in the Blood itself: As for Instance, the Gout in human Bodies causes a Symptomack Fever, so does the first Milk in Women's Breasts; and in Brute Creatures, as I have said, *too violent Exercise in hot Weather*, or in Cold, when not duly managed afterwards.

Secondly, This Fever may be occasioned by turning a Horse to Grass in very hot Weather; especially if the Inclosure be small, where there is but little Air, and where there is not any convenient Shade to cover him from the scorching Heat of the Sun.

Mr. *Gibson*, in his Book of Farriery, says, that “ this Fever (I mean what he calls Simple, and what I term Symptomack) may be caused by Bleeding a Horse in the Heat of
“ the

"the Sun, in a hot Season, without housing; and that because during the Operation the Blood is put into a greater Motion than ordinary, and that this new Motion is kept up and increased by the additional Heat of the Weather." And he farther says, "that this Doctrine may be illustrated by the common Effects of Fire, under a Pot or Kettle, where the Heat of the Water increases more in the same Species of Time, according to the Degrees of its Motion, tho' the Fire be not increas'd." Now, for my Part, I frankly confess, I don't rightly apprehend Mr. Gibson's Meaning, unless it is, that the Water heats more in the same given Time when near boiling, than it did a while before; but at best this is only a very lame and unsatisfactory Experiment.

External Cold or Perspiration hinder'd, produces a Fever.

In the next Place, external Cold, which hinders that natural Perspiration or insensible Sweating, so beneficial to both Man and beast, may bring on this Fever: For by hindering Perspiration, the Quantity of Blood is increas'd, and that too with such a Fluid, as is far from the Homogene or benign Nature of it.

And here it may be observed, with respect to Causes and Effects, that the same Cause will produce very often different Effects, and that the same Effect will often proceed from different Causes. For Cold, when it's Effects are sudden and universal, will cause as sudden a Change in the Blood. But when Cold is only partial or gradual, it will have a much different Effect; such as touching the Brain, Lungs, or some other particular Bowel: Yet notwithstanding all this, the different Effects which we may observe from the same Cause, or the same Effect proceeding from seemingly opposite Causes, may only arise from the different Degrees of Efficacy in the Causes themselves. Wherefore we cannot be exact and competent Judges thereof, especially as they are exerted in the Animal Body, which is infinitely various in its Composition and Structure. I shall now proceed to give an Account of the Signs of a Fever in general.

The Signs of a Fever.

The Signs of a Symptomack and continued Fever are violent Heat, and Fulness of the Vessels, which will appear even to the Eye, a Beating of the Heart and Flanks much quicker than ordinary; a Dryness in the Mouth with Roughness of the Tongue; continual Watchfulness and Restlessness; insomuch that if a Horse be seiz'd with this Fever in the Field, he will be perpetually moving from Place to Place, going often to the Water, but (as some Authors say) cannot drink; tho' really I am of Opinion all Creatures will drink if seiz'd with a Fever: And notwithstanding it was the former Practice to deny much Liquids in such Case; Yet the Moderns agree that Diluters are of all things not to be denied, provided they consist of proper Mixtures, &c. Besides, when a Horse is seized with a Fever,

Fever, he will often smell to the Ground without pasturing or feeding. These I think are the most common Signs. Now for the Cure.

Having laid down the Causes, as far as we may well judge, and also the Signs of a Symptomatick Fever, it remains that I go thro' the Methods of Cure; and herein we are to observe, that since there can be no Accidents in these kinds of Fevers but what depend upon the Augmentation of the Blood's circular Motion, and while in this State the Blood is not supposed to be in any wise, or at least but little, vitiated, those things are only to be done or administered, which tend to lessen the said Motion, and bring it to a more quiet and sedate State. Therefore, Bleeding is in the first Place necessary, after which Clysters, compounded of a strong Decoction of *Senna*, with about a Quarter of a Pound of the coarsest Sugar dissolv'd in each, may be proper at due Intervals: for Example, once every Day to keep the Horse's Body open.

The Cure.

Clysters proper in Fevers.

There are not many Drugs required in these Fevers; for, as I have said, proper Bleeding along with the continued Use of Clysters for about six days, is sufficient to conquer the Disease, provided the Horse's Diet consist of proper Food, and this should be given him sparingly; for Nature is the best Guide, which (in Man as well as Brute Creatures) commands, that in most (or even all) Disorders, a strict Regard be had not to overcharge the Stomach; for by such Mismanagement, She is so far from being assisted, that She is, on the contrary hindered in her Efforts towards carrying off the Disease.

A Horse in a Fever, should have no cold Water given him, but rather Milk and Water warm, with a little Oat-meal strewed upon it; and this may indeed be given him in pretty large Quantities, as a Diluter and Cooler of the Blood, &c.

A Horse in a Fever should have no cold Water.

Purging Medicines by the Mouth, ought never to be used in Fevers; for these raise new and terrible Commotions in the Blood in such Cases, and may in all likelihood occasion an Inflammation in the Guts, by driving or drawing a quantity of the Febrile Matter that way.

Purging Medicines improper in Fevers.

Before the Use of Clysters as aforesaid, the Farrier should anoint his Hand very well with Oyl or fresh Butter, and pass it up the Horse's Fundament, in order to bring away the hardened Dung or Excrements; and his Clyster-Pipe should be long and large, that the Liquor may pass as far as possible into the Guts. I know some Farriers who have Syringes, or Instruments commonly called Squirts, which will contain at least three Quarts of Liquid; And these, in my Opinion, are exceeding proper to inject Clysters: For the Guts of a Horse are not only large, but of a considerable Length, from the Valve in the Colon downwards; so that the Quantity injected or thrown up into the Gut, ought not to be less than

two

two Quarts, forasmuch as those things which lie in less Room, are of two powerful a Nature to be made use of on these Occasions; I mean, that if a Clyster was contrived in a little Quantity so as to operate, it must be compounded of such sharp stimulating Ingredients, as perhaps might do more harm than Good. Therefore, as I have said, let all Clysters in Fevers be *mild in Operation, and large in Quantity.*

A Clyster in
a Fever.

Take of Mallow Leaves, and Pellitory of the Wall, each four handfuls; Aniseed, and Caraways bruised, of each one Ounce; boil these in four Quarts of Water to three, then strain it off, and add of Gallipoly-Oyl three Ounces, of coarse Sugar four Ounces, Caryocostinum Electuary one Ounce, mix. The Caryocostinum costs about 2 d.

Some add Lenitive Electuary three Ounces, or as the Nature of the Case requires. For really there is not any such thing as prescribing general Rules in Fevers, which sometimes require more, sometimes less of Purgatives, such as the Lenitive Electuary, Electuary call'd Caryocostinum, or such like, to be mixed with the Clysters: But if what I have before prescribed cause the Horse to void his Excrements, I think it is sufficient without adding any thing more purgative.

Clysters
should be in-
jected very
warm.

Clysters should be injected pretty warm; for Example, as warm as one can possibly hold the Bladder with the Liquor unto one's Cheek; and the Horse's Tail kept close to his Fundiment for some time, that the Clyster may be retained as long as may be.

There are many more Forms of Clysters prescribed, in ancient Authors, but this which I have set down may suffice, and will do as much Service as all the rest, which are only of the like Intention.

I think it needless to enumerate all the different Kinds of Fevers, such as the Putrid, the Pestilential, the Heftick, the Intermitting, and the like; seeing it would not be of use to the Reader, and only serve to swell this Treatise, which I design to write as concise as possible; yet with all due Regard to the Distempers which Gentlemen can or may form just Ideas of. And therefore I at present quit the Subject of Fevers, and proceed to discourse upon what the Farriers commonly term Surfeits.

C H A P. VIII.

Of Surfeits,

AS this is a Term frequently used among Farriers, as well as all Sorts of People, to signify a Disease, I think it not amiss to say something in relation to it,

By

By a Surfeit is principally understood, all such Maladies or Distempers as proceed from excessive and immoderate Feeding, but especially upon unwholesome Food; from Cold and Hard-riding, &c. whereby a Horse forsakes his Meat, and is infested with hard Swellings, which (if they happen to fall upon the Joints) will, in process of Time, occasion Lameness and many other Disorders.

What is generally meant by a Surfeit.

I will not say but Farriers call those Horses surfeited which do not thrive well, or have their Coats staring and stickle, (as the term is;) but the Distinction I have made is most bounded and intelligible; for really these ignorant Fellows call all Horses, which have been in use, surfeited (if they don't thrive well) as I have already said.

Now whatever be the original Cause of Surfeits, that is, whether they proceed from Colds, Excess of Feeding, or laborious Exercise, or from any Disposition of the Air or Climate; it is very certain, that whatever goes under the Notion of Surfeits, is no other than that which follows the imperfect Solution of a Disease: As when the Matter of the Distemper is by Translation, thrown or cast off upon some particular Part of the Body, so as to occasion Swellings, &c. But these Surfeits, which proceed only from a Glut of Provender, or the like, are easily cured, as their Cause is the most Simple; whereas those, on the other Hand, proceeding from complicated Causes, are often the effects of Chronick Distempers, or Distempers of long standing: And therefore the Cure is hard and difficult, and indeed many Times such Horses are incurable.

But I imagine myself better to be understood, if I give my Thoughts concerning that Kind of Surfeit, which proceeds from Over-feeding or Foul-feeding; for, by the Knowledge thereof, all that is necessary concerning Surfeits will be more intelligible, as it is this alone which, truly and properly speaking, constitutes a Surfeit.

First then, we are to consider, that while the Stomach is constantly receiving Food, and as constantly transmitting new Supplies of Chyle or nutritive Juice to the Mass of Blood, that therefore the Blood-Vessels become distended and full, inso-much that what is over and above sufficient for a Horse's just Nourishment, cannot be carried off by the proper Outlets; that is to say, the Canals or Pores of the Extremities, are not wide enough to admit so much gross Matter as is separated by the Glands of the Intestines or Guts; and consequently the Distention of the Vessels will be more and more increased: And here it may not be thought amiss to shew, as briefly as may be, how Animal Digestion is performed. And first, I say,

Animal Digestion is the Dissolution or Separation of the Ali-Animal Elements into such minute Parts, as are fit to enter the Lacteal or gestion defimilky Vessels, and circulate with the mass of Blood; or, it is
ned,
the

the simple breaking of the Cohesion, or sticking together of all the little Molecules, or Cakes and Lumps, which compose the Substances any Animal feeds upon. Now the principal Agents employ'd in this Action, are, *first*, the Juices separated by the salivary Glands, or Glands about the Mouth and Throat. Next to the Saliva may be reckoned the Juice of the Glands in the Stomach, and the Liquors we drink, whose chief Property is to soften the Aliments, as they are Fluids which easily enter the Pores of most Bodies, and by swelling them break their most intimate Cohesions: And how prodigious a force Fluids have when acting in such a Manner, may be learned from the Force that Water, with which a Rope is wetted, has to raise a Weight fastened to, and sustained at one End of it. And this Force is much augmented, by the Impetus or Stroke which the Heat of the Stomach gives to the Particles of the Fluid. Nor does this Heat promote Digestion thus only, but likewise by rarefying the Air contained in the Pores of the Food, which helps to burst its Parts asunder. And therefore such Liquors as are most Fluid, or whose Particles have the least Viscidity or Clamminess, are most proper to assist the Faculty I am treating of; by Reason such Liquors can the more easily insinuate themselves into the Pores of the Aliments. And of all other Fluids, Water seems the most fit for this Use; for, though some Spirituous Liquors may as easily penetrate the Substances we feed upon, yet they have another Property by which they hurt, rather than help Digestion; and that is, their Particles have a strong attractive Force, by which, when imbibed into the Substance of our Food, they draw the Parts thereof nearer to one another: So that in Fact, they contract and harden, instead of swelling and dissolving our Victuals. And it is by this Property, that they preserve from Corruption Animal and Vegetable Substances; not but that we sometimes find they help Digestion, as they irritate and excite the Coats of the Stomach to a stronger Contraction; and therefore, when they are duly diluted, they may not only be useful but requisite. I say, when the Food is thus prepared, its Parts are soon separated from one another, and dissolved into a Fluid with the Liquors in the Stomach, by the continual Motion of its sides, whose absolute Power is demonstrated to be equal to the Pressure of 117088 Pound-weight in a Human Body, and in a Horse this Force or Power of Digestion is near double: To which, if we add the Power of the Diaphragm, or Midriff, together with the Muscles of the Abdomen or lower Belly, which likewise conduce to assist in Digestion, then the Sum in a Human Body will amount to 250734 Pound-weight, which has been proved to a very great Nicety by Dr. *Wainright* and others. And since I am advanced thus far into a Discourse upon Digestion, I hope it will not be unentertaining for me to shew how Nutrition is performed. Under this

this Term may be comprehended; *First*, all that passes under Digestion, as already mentioned. *Secondly*, the Apposition of new Parts in the room of those wore off by Action: But here is to be taken Notice, that the Parts of the Food are not dissolved into essential Parts, (as some call them,) or Elements, whether Chymical, or any other, by the Assistance of a Ferment in the Stomach; that is to say, by a Separation of some Parts of different Kinds combined together, and an Union of other Parts before in separation, as it happens in all Fermentation of Wine, wherein Tartarous Particles, before united with others, are separated; and Particles of Phlegm and Oyl, which were before in separation, are brought nearer together, and form a true Spirit. But, by the Concoction which is performed in the Stomach, the Food is divided into integral Parts, not differing from what they were before, but only in obtaining lesser Bulk; in the same Manner altogether as Coral is ground upon a Marble with Water, and reduced into an impalpable Powder, whose Parts are only small Pieces of Coral, and not any Principles into which Coral is resolved, as has (by ignorant Chymists) been foolishly imagined: For the Proof of this Assertion, there needs no other Argument than, that in the Stomach and Intestines of the larger Fish, which devour and digest the lesser, the Chyle is nothing else but a Liquor filled with the Fibres of the devoured Fish, as may easily be discerned with a *Microscope*; or the small Parts of Fibres no way differing from the larger (that is indigested Pieces of Flesh) but in Magnitude. The Chyle thus Elaborated or Concocted in the Stomach, by its alternate Contractions, and the Force of the neighbouring Muscles, is thrown out into the Intestines or Guts; at its Entrance into which, it is diluted with Bile or Gall, and Pancreatic Juice, (or Juice separated for this End by the Gland called the Sweet-Bread;) and these Liquors do not undergo any Effervescence or Fermentation with the Chyle, or with one another, but are smoothly and quietly mixed therewith, and with each other, as appears by many and repeated Experiments. But by means of the Bile or Gall and Pancreatic Juice, the Chyle is rendered more Fluid: And hence it is, that the Parts of the Food, (in some Measure dissolved by the Motion of the Stomach, but not sufficiently separated from each other, through want of a due Quantity of Fluid, every one yet being in some Measure in Contact with each other) pass over the Pylorus or lower Orifice of the Stomach into the Guts; and when these greater or less digested Particles cannot, by reason of their Magnitude, be strained in any considerable Quantity into the Lacteals, they are thrust yet farther into the Intestinal Tube, and therein Putrefy, since they are out of the Verge of Circulation, which commences at the Lacteals: For all Things, as the Flesh of dead Creatures, Herbs, &c. which are capable of Putrefaction out of

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the Animal, are capable of Digestion in it. And from hence it is, that Digestion is much more effectually and expeditiously performed in the Day Time, or when the Animal is awake, than in the Night, or during Sleep: Because, while awake, every Creature breathes thicker, and the *Diaphragm* or Midriff and Muscles of the *Abdomen*, and even of the whole Body, are more exercised, and the Stomach oftner compress'd. It also follows, that by gentle Walking (or while any Animal exercises in a moderate Degree,) Digestion is more effectually and expeditiously performed, than while in Idleness and without Motion. And that this is the true Theory of Digestion and Nutrition (I mean that it is the Motion of the *Diaphragm*, &c. which conduce in a great Measure to these great Ends) will appear from the very *Phys* or Countenance of a hard Student, more especially if he betake himself to this Work soon after Eating; for, by this his Visage looks pale and wan, for no other Reason than that the Mind is so diverted, that Respiration or Breathing is more rare or seldom, that is, we do not fetch our Breath near so often, as even when we sleep, which is a very bad Situation for Digestion; add to this the Determination of the Animal Spirits, which after eating a hearty Meal, ought to flow in greater Abundance to the Stomach, in order to assist Digestion. For this so very sensible Membrane, is touched with a pleasant Titillation after Eating, which determines the Animal Spirits as I have said, towards the Stomach. But on the other Hand, when the Mind or Cogitative Soul, is taken up with the Resolution of dark and problematical Questions, or the like; I say, this determines the Animal Spirits towards the Brain; whereas Nature designs them, for some Time after Eating, for the Use aforesaid. From hence it may be observed, how necessary it is for Students to unbend the Mind by some Kind of Musick, or other Pleasure of like Kind and Benefit, to forward Digestion; otherwise, as I have already hinted, their Visage will be pale, fallow, and wan.

It is also observable, that we digest better in Winter than Summer; because in the Winter, to drive away the Sense of Cold, we are oftner put upon Exercises and greater Activity of Body, than in the Summer Season: As likewise, because the Muscles and solid Parts are more Tense and Firm, and consequently stronger, in their Contractions and Attractions. But as for any Ferment in the Stomach, whether it be *Saliva* or *Serum*, issuing out from the Glands of the Stomach, it cannot contribute any Thing to the Digestion of the Food, any further than by softening it, whereby it is capable of being further divided. Neither do any Liquors flow into the Stomach to promote Digestion; but Digestion, that is, the Motions of Swallowing, Chewing, and of the Stomach, are the Cause why these Liquors are pressed out, and that they drain into the Stomach.

mach. For that those Liquors contribute nothing (further than as I have mentioned) to Digestion, is manifest from hence, that if Herbs or Meat be mixed with them in any convenient Place, (as warm as the Stomach) but without Motion, they will never be changed into Chyle. So that it is astonishing that any Writer should ascribe to the Serum of the Blood (as it is excerned or separated by the Glands) a Faculty of changing solid Meats into Chyle; whereas it is evident, that the Serum or thin Part of the Blood, is not a fit Menstruum or Dissolvent for the Solution of Bread, Meat, or Herbs. But this Affair will be better understood from considering, the never-to-be forgotten, and justly celebrated Mr. Boyle's Discourse upon a Machine for Digestion, as described by *Rapin*; wherein, without the Help of any Ferment, but by the Assistance only of Warmth (and the Pressure of rarified Air confined,) Bones and Flesh, with the Addition of a small Portion of Water, are turned into a Jelly, where nothing is wanting to its being made real Chyle, but the rough Superficies of a Body to grind and often shake it about.

The Chyle thus made, washes over the Pylorus or lower Orifice of the Stomach, into the Intestinal Tube or Gut called Duodenum, which in Horses is 26 or 27 Yards in Length, and wider than in Oxen: It is something narrower for about a Foot and an half from the Stomach, where the Porus Biliaris or Gall Pipe, and Pancreatic Duct or Pipe which carries a Juice into this Gut from the Sweet-Bread, enter: After this the Chyle is (by the Peristaltic or worm-like Motion of the Guts, and Pressure of the Diaphragm, along with the Help of the Muscles of the Abdomen or lower Belly, strained through the narrow Orifices of the Lacteal Veins, while the grosser Parts continue their Motion downwards, (or rather backwards in a Horse,) until they are quite ejected by Stool; what passes through the Lacteal Vessels, is carried by them into the Glands of the Mesentery, where they receive a fine thin Lymph from the Lymphaticks, whereby the Chyle is so diluted, that it passes easier the rest of its Course: For, beyond the first Glands, I mean the first in the Mesentery or Net, these Lymphatick Vessels unite in larger Canals, and those in still larger, until at last it arrives (that is this thin Lymph) at the Receptaculum Chyli, or common Receptacle of the Chyle, which is a Kind of Bason formed for it, by the Union of the Lymphatick and Lacteal Vessels. From thence, in one Duct or Pipe, it ascends the Thorax or Breast; and sometimes dividing about the Heart, it immediately unites again; and creeping along the Gullet, it passes in Man to the left Subclavian Vein or Vein in the Arm Pit; and in Horses, into a Vein under the left Shoulder-Blade, where, by one or two Mouths it pours in its Contents, and there mixes with the

Venal Blood, as it returns from all Parts of the Body. But in the second Acceptation of this Term of Nutrition, wherein it is understood of the Blood's nourishing all the Parts of the Body, such Kind of Nutrition is performed by a Secretory Duct, or small Pipe arising from the Termination or End of an Artery, which carries a suitable Portion of Blood to every Part to be nourished: So that every Point in the Body must be a Termination of a Secretory Duct, through which a proper Part of the Blood is conveyed, in order to supply that Part of the Body. And thus much for Nutrition, and the Course of the Chyle. Now it remains that I say something about the Circulation of the Blood, and shew how, and in what Manner this so surprizing Piece of *Mechanism* is mechanically performed. But first of the Blood itself.

By the Blood, some understand not only the Fluid in the Veins and Arteries, but likewise that in the Lympheducts, Nerves, or any other Vessels of the Body; because they all of them contain Parts of the Blood separated from it by force of the Heart, and many of them by the Animal Mechanism return to it again, after performance of their destin'd Task. And in this Acceptation it is taken in the Calculations of its Quantity and Velocities, both in Human and Brute Creatures, which, because it is of the greatest Moment to understand, I shall explain in as brief a Manner as may be. But first of the Heart itself.

First, I say the Ventricles or Cavities in the Heart of a Horse, of a middling Size, are each of them capable of receiving four Ounces of Blood, or more; and therefore, being in their Diastole or Dilatation, we may suppose that they throw out at least four Ounces of Blood in each Systole or Contraction. The Heart of this Creature contracts about 1800 Times in an Hour, which is about one half slower than in Man; (it would be understood in a Healthful State;) but even this varies in some Measure according to the different Temperaments, Sexes, and Ages: It is supposed there pass through the Heart of a Horse 1800 Times four Ounces, or 450 Pounds of Blood in an Hour. Now the common received Opinion is, that the whole Mass of Blood in Man is about 25 Pound, and in a Horse six Times as much; and therefore according to this Allowance, a Quantity of Blood equal to the whole Mass, passes through the Heart ten Times in an Hour in Man, and in one Hour and twelve Minutes in a Horse. And from hence may be observed, how necessary it is to take away greater Quantities of Blood in many Cases, than is commonly practised; for what sensible Effect can the taking away a Quart of Blood from a Horse, have upon him; If we consider that he has near 225 Times as much in his Body; or how much we may depend on what is called making a Revulsion, or drawing the Humours

The Quantity of Blood calculated.

Humours off by Bleeding in the Tail. For Example, when the Distemper affects the Eyes, I say in my own Thoughts, little, nay very little, Stress can be put on the Practice, seeing the whole Mass of Blood passes through the Heart in an Hour. Therefore the Benefit of Bleeding accrues from the Quantities being lessened, and more free Liberty or Room thereby given to the remaining Part. It is very surprizing, to consider how far the old Writers have been carried out of the true Doctrine and Nature of Things, by false and outward Appearances, such as those I am speaking of, and their unwillingness to search after Truth, was the grand Cause of their dark and abstruse Reasonings.

Now, having the Number of Pulses in any determinate Time, the Quantity of Blood thrown out at the left Ventricle of the Heart every Pulse, and the Diameter of the Aorta or great Artery arising from the Heart, I say, these things being known, it will be easy to find with what Degree of Celerity the Blood moves thro' the Aorta. For, *the Celerity with which a Fluid runs out at any Orifice, uniformly, and always running in the same Quantity, is equal to the Velocity of a Body which describes a Space of the same Length with that of a Cylinder, whose Basis is equal to the Orifice, and whose Magnitude is equal to the Quantity of Fluid that runs out in the same Time;* And this Theory might be yet farther illustrated, but my time, as well as Room, here will not permit me to say much more about this Matter. However, I must not omit one Thing, because most Farriers are so very ignorant, that they hardly know the Difference between a Vein and an Artery, but call them all in general Veins, notwithstanding it's of the greatest Concern, for the Cure of Diseases, to have a perfect Knowledge of Anatomy. I say then, that the Sum of the Sections of the Branches of an Artery, is always greater than that of the Trunk or Body of it; and consequently the Velocity of the Blood must always decrease, as the Artery divides into more Branches, and is by Experiment shewn to do so as 5233 is to 1; or the Blood moves 5233 times slower in some Capillaries or very small Branches of an Artery, than it does in the Aorta or great Artery. The Blood is received from the Extremities of the Arteries into the Veins, where it still moves slower as it returns to the Heart again.

The Arteries are to the Veins as 324 to 441, and consequently the Blood moves in the Veins above 7116 times slower, in Man, than it does in the Aorta or great Artery arising out of the left Ventricle of the Heart.

There is no Time when all the Blood can be said to have once circulated: But, if there were any such time, the Quantity of Blood in the Body must be first determined, which is

very difficult to do, and not yet fully agreed upon by hardly any two Persons.

Bleeding to Death cannot give a true Estimate of the Quantity of Blood in any Animal.

Bleeding to Death can never give the Estimate of it's true Quantity; because no Animal can bleed longer than while the great Artery or Aorta is full, which will be longer or shorter, as the wounded Artery is smaller or greater, and the Aorta must always be the first Vessel that empties.

The most certain Way, no doubt, is to find what Proportion the Cavities of the Vessels, of which the whole Body is compos'd, bear to the Thickness of their Coats: And this in the Veins and Arteries may be exactly found, but in the other Vessels, we only know the Quantity of Fluid they contain, by carefully evaporating as much as possible, which the ingenious Dr. Keil has try'd to a Nicety; and by his Experiments it is found, that the Liquors contained in the Vessels of the Body are (even at the lowest Calculation) one Half of the Weight of the whole Body. And if a Calculation be made on the Proportion of the Blood in the Arteries to their Coats, in a Body weighing 160 Pound, there will be found 100 Pounds of Blood. I shall now proceed to a Description of that admirable Piece of Mechanism the Heart.

The Pericardium describ'd.

In describing the Heart, it may be of use to prefix that of the Pericardium or Bag in which the Heart is contain'd, because they have such a near Relation to each other. The Pericardium, so called from *peri*, *circum*, *about*, *cardia*, *cor*, the Heart, is a thin Membrane of a Conic Figure, that resembles a Purse, and contains the Heart in it's Cavity. It's Basis or Bottom-Part is pierced in five Places for the Passage of the Vessels which enter and come out of the Heart. It lies in the Duplication or Doubling of the Mediastinum, which is a double Membrane, formed by the Continuation of the Pleura or inner lining of the Ribs, which arises at the Sternum or Breast-Bone, and goes straight down thro' the middle of the Thorax or Cavity of the Breast, to the Vertebrae or Bones of the Back. I say, this Membrane (which Nature has so wisely formed to divide the Thorax, to the End that when one Lobe of the Lungs is hurt by a Wound, the other Lobe or Part of them may officiate) contains in it's Doublings, the Heart in it's Pericardium, the Vena Cava or hollow Vein, the Oesophagus or Gullet, and the Stomachic Nerves. The Use of the Pericardium is to contain a small Quantity of a clear watery Lymph, which is separated by small Glands in it, that the Surface of the Heart may not grow dry by its continual Motion.

Mediastinum describ'd.

This wonderful Engine is situated in the Middle of the Thorax or Cavity of the Breast, between the two Lobes of the Lungs; it is of a Conic Figure, whose Basis is the upper End or towards the Horse's Head, and it's Apex or Point, the lower

End

End as we call it, which is turned a little to the left Side, that the right Auricle (or Ear of the right Ventricle) may be a little lower than the Left, by which Means the reflux Blood in the *Cava* ascends the more easily in human Bodies; but in Horses the Point of the Heart is not turned so much to the Left, by reason the returning Blood brought by the *Vena Cava* to the Heart, does not rise so perpendicularly as in Man.

The Heart is ty'd to the Mediastinum and Pericardium, both ^{The Heart} which I have described, and sustained by the great Vessels ^{describ'd.} which bring and carry back the Blood. It is cover'd by a Membrane or thin Skin, which is of the same sort of that with which the Muscles are cover'd. It's Basis or Bottom-Part is always surrounded with Fat. It has two Veins which open into the *Cava* or hollow Vein, immediately before it empties itself into the Auricle; and they are accompanied by two Arteries, from the Aorta or great Artery, which run thro' all the Substance of the Heart; they are called the Coronary Vessels. The Arteries bring the Blood for Nutrition and Motion of the Heart, and the Veins carry back what is superabundant. The Branches of the Veins on the right Side communicate with those of the Left; and in like Manner do the Arteries on each Side communicate with one another, and it is the same, tho' not every where so evident, in all the Parts of the Body.

The Heart receives a Multitude of small Nerves from the Eighth Pair (as they are called by Anatomists;) particularly they creep in great Numbers about the Aorta and the left Ventricle. It has also some Lymphatics or Vessels which convey a thin Liquor which discharge themselves into the Lymphatic Duct or Pipe.

At the Basis of the Heart there are two Auricles or little Ears, ^{The Auri-} one on the right, the other on the left Side: into the right Ear ^{cles describ-} opens the *Vena Cava*, into the left the *Vena Pulmonalis*; the ^{ed.} first discharges the Blood it receives from the *Cava* into the right Ventricle, and the second thrusts the Blood which comes from the *Vena Pulmonalis* into the left Ventricle.

The left Auricle is less but thicker than the Right; their Substance is composed of two Orders of Muscular Fibres, which terminate in a Tendon or finewy Substance. At the Basis of the Heart, and at ther ight Ear, there is a Circle like to a Tendon where the *Cava* ends.

Their external Surface is smooth, their internal is unequal, full of small fleshy Pillars, which send out small Fibres that cross and go thwart one another, and betwixt these Pillars, there are as many Furrows. They receive Nerves from the Branches of the Eighth Pair. They have the same Motions as the Systole and Diastole of the Heart, that is to say, they dilate and contract in the same manner.

The Use of the Auricles is to receive the Blood, which is brought by the *Cava* and *Vena Pulmonalis*, and by them 'tis to be thrust forwards into the Ventricles of the Heart.

In the Heart there are two Cavities or Ventricles, which answer to the two Bars one on either Side; the Sides of these Cavities are very unequal, full of Fibres and little Fleishy Productions, long and round, of a different Figure and Bigness, called *Columnæ* or Pillars: Betwixt these Fibres there are several Furrows in the Sides of the Ventricles, especially in the left Ventricle, where they are deeper and longer. They contribute much to the close Contraction of the Ventricles: And because the Side of the right Ventricle is much thinner than the Left, therefore there is often a small Bundle of Fleishy Fibres, which come from the middle Partition, call'd by Anatomists the *Septum medium*, to it's opposite Side, to hinder it from dilating too much.

The Right Ventricle describ'd.

The Right Ventricle seems much wider than the Left, which is longer and narrower than the Right, and its Sides stronger and thicker; and this, Nature has contriv'd so, because it is the left Ventricle which by Contraction throws the Blood all over the Body. Therefore it was necessary the Sides of it should be much thicker and stronger than those of the Right Ventricle. The two Ventricles are separated by the *Septum medium*, which is properly the Inside of the left Ventricle, since its Fibres are continued or joined with the Fibres of the opposite Side of the same Ventricle.

Its Vessels.

The Vessels which enter, and come out of the Heart, are the *Vena Cava*, the *Arteria*, and *Vena Pulmonalis*, and the *Aorta* or *Arteria magna*.

The Right Ventricle of the Heart describ'd.

The right Ventricle receives the Blood from the *Vena Cava*, thro' the right Auricle or Ear, and at the Mouth of this Ventricle there are three Valves or Flaps made of a thin Membrane; they are of an Angular Figure and called *Tricuspidæ*; their Bases are fix'd to the Mouths of the Ventricles, and their Points and Sides tied by small Fibres to the Fleishy Productions; so that when the Ventricle contracts and the opposite Sides approach one another, the Points of the Valves meet, and their Lateral Springs being relax'd, the Sides are likewise made to join one another by the Blood which gets between them, and the Sides of the Ventricle: The three Valves thus united form a Concave Cone, which hinders the Return of the Blood, to the Auricle: It is from thence thrust out at the *Arteria Pulmonalis*, which rises immediately out of the right Ventricle; its Mouth is less than the *Cava*; it has three Valves called *Sigmoidales* or *Semilunares*, because they resemble a half Moon, or the old Greek *Sigma*, which was writ like a C. Their Substance is membranous; when they separate, they give Passage to the Blood from the Ventricle into the Artery, but they shut the Passage

Passage and are thrust together by the Blood, if it endeavours to return.

The *Arteria Pulmonalis* carries the Blood to the *Vena Pulmonalis*, which dischargeth it self thro' the left Ear into the Ventricle of the same Side. At the Orifice of this Ventricle there are two Valves, called *Mitralis*, because they resemble a Mitre. They are broader than the other Valves, and are situated, and have the same use, as the *Tricuspides* in the right Ventricle. Description of the Aorta.

The Aorta or great Artery, arises immediately out of the left Ventricle; it has three Valves, which have the same Use and Figure as the *Semilunares* in the *Arteria Pulmonalis*.

The Heart is a compound Muscle, and its Substance is made of Fibres of the same Nature as those of other Muscles; there are several orders of them which have different Directions, and all their Tendons are in the Basis of the Heart. From the Aorta, just by one of the Coronary Arteries, go out two Tendons, of which the first passes thro' the Pulmonary Artery (or Artery leading to the Lungs) and the right Auricle; the other passes between the two Auricles; These surround the Entry both of the Aorta and left Ventricle.

The Entry of the right Ventricle is also tendinous, but all the Fibres which terminate about the Pulmonary Artery terminate fleshy.

Now of the Fibres which spring from the right Ventricle and Pulmonary Artery, the Outermost, which are by much the finest, go in a straight Line to the Point of the Heart, All the others, which are next the Surface of the Heart, wind towards the left Hand, till they arrive at the Point, where turning underneath themselves, and under the right Ventricle, they wind up the left Ventricle towards the right Hand, to their Insertion in the Basis. Under the straight Fibres there pass a few more almost straight, from the Mouth of the right Ventricle, to the Pulmonary Artery; and from the opposite Side of the Artery, to the second Tendon of the Aorta, there pass others, by both which the Mouth of the Pulmonary Artery is dilated in the Contraction of the Heart. Under all these, some which wind from the first Tendon of the Aorta towards the Point, when they come to the middle of the right Ventricle, turn up again to the Root of the Pulmonary Artery, or terminate in the fleshy Pillars and *Papille*. These both contract the Ventricles, and dilate the Arteries at the same time.

The Mouths of the Ventricles are likewise surrounded with Semicircular Fibres, which assist the Valves in the Systole, or Contraction of the Heart. On the side of the *Septum medium* (which is next the right Ventricle) some Fibres go straight from the Basis to the Apex or Point. All the Rest of the Fibres are only twisted round the Ventricle, and of these some creep half way, some more than half way, and then return to the Basis by

The Fibres
of the Heart
ossified in se-
veral Ani-
mals.

the opposite Side; some again terminate in the fleshy Pillars and *Papillæ*; the Rest turn the Point and seem to involve the Heart more than once in their going from, and returning to the Basis. And from hence it appears, that a much greater Number of Fibres involve the left Ventricle than do the Right, seeing the Blood is by the right Ventricle thrust only through the Lungs, but by the Left, through all the Parts of the Body, even to the Extremities and back again; for it is by the force of the left Ventricle, that the Blood returns to the Heart by the *Vena Cava Ascendens* and *Descendens*; and that the Force or Contraction of this Ventricle might be every where strong, and the Texture of the Heart firmer, these Fibres are not all Parallel, or they do not run all with the same Obliquity: But the inner always decussate or cross the outer, and frequently mix with one another. The Bone which is found in the Basis of the Heart of several Beasts, particularly the Stag, is nothing but the Tendons of the Fibres of the Heart ossified; and this Bone (as it is falsely called) is found in Men. The Heart, which is properly called a Muscle, has two Motions, *viz.* Systole or Contraction, and the Diastole or Dilatation. In the first of these Motions, when the Fibres contract, its Sides swell, and its Cavities or Ventricles are strongly press'd from all Parts. The Diastole is when it ceaseth to act; its Fibres are lengthened, its Sides fall, and its Cavities become large and wide.

The Force by which this Muscle throws the Blood out of its Ventricles, or by which it contracts in its Systole, has employed the Enquiries of many in vain: And even the famous *Borelli*, with a great deal of Geometry to his Assistance, seems to have been far wide of Truth, in his calculating this Power in the Heart of a human Body. And as the Creature I am treating of has a Heart which, in Contraction, throws out four Times as much Blood as a Man's; therefore it must act with four Times the Force. I say *Borelli's* Mistakes proceed mostly from his Reasoning upon improper *Postulates*, rather than the Insufficiency of the Means he made use of: For Dr. *Keil* has since, by the same Helps from Geometry, much more satisfactorily determined it. For if we have the Velocity wherewith a Fluid flows out at any Orifice, without Resistance from an anterior Fluid, it is easy to determine the Force which produces that Motion. But this would, at present, take up too much Time to perform.

The Hearts of any Creatures are to one another as their Weights; and it is computed, that the Weight of (I mean the ordinary Weight) a human Heart is twelve Ounces, then its Force will be almost $\approx$ eight Ounces: And although this Computation be somewhat more than has been formerly determined, yet it is of no great Moment, if we consider *Borelli's*, who required a Force in the Heart's $\approx$ Pressure of 180000 lb. Weight,

Weight, to move 20 *lb.* of Blood: But this great Difference of his Calculation seems to arise from his not distinguishing between the *Blood at Rest* and *already in Motion*: For, the Force of the Heart is not employed in moving any Quantity of Blood at Rest, but only to continue it in Motion. Yet how this Motion first came, or was impress'd upon it, seems out of human Capacity to determine. However, this is certain, that if the Resistance of the Blood bore always the same Proportion to the Force of the Heart, as it does now, the Blood never could at first be put in motion by the Heart; for there is a vast Disproportion between moving a Body at Rest, and keeping it in Motion when it has acquired it. This is discoverable in a very eminent Degree, in the Flux and Reflux or flowing and ebbing of the *Sea*; for, the highest *Tides* are not precisely on the *New* and *Full Moons*, nor the *Neaps* on the *Quarters*: But, generally, they are the third *Tides* after them, and sometimes later; and the Reason is, that the Water's being put in Motion by the Action of the Luminaries, their Libration or swinging in the Manner of a Pendulum, continues for some Time after the Full and Change: And though the Action of the Luminaries should cease, the Flux and Reflux of the Sea would, for some Time, continue.

The Reason why the highest Tides are not precisely upon the Full or Change of the Moon:

Now, did the Blood constantly move forwards with the Motion at first communicated to it, and did the Coats of the Vessels make no Resistance, the Posterior Blood would not be retarded or hindered by the Anterior; or the Blood, thrown out of the Heart by the Contraction of the Left Ventricle, would not be retarded in its Motion by the Blood already in the Aorta or great Artery; and the Force of the Blood would equal the entire Force of the Mover. But, because of the Resistance made by the Coats of the Arteries and Veins, and the Force which is spent in distending them, the Blood is continually retarded in its Motion as it circulates, and would, in a short Time, stop, were not the lost Motion made up by a fresh Impulse from the Heart; and therefore the Force of the Heart, must be equal to the Resistances the Blood meets with in its Motion: If it were more, the Velocity of the Blood would be continually increasing; if less, it would continually decrease, and at last stop. And from hence it is evident, that if the Circulation of the Blood was once stopped, all the Force of the Heart could never set it a moving again. I shall now proceed to shew how, and in what Way, the circulation of the Blood is performed, in a more particular Manner than I have yet done in my Description of the Heart, &c.

To form a right Apprehension of the *Animal Oeconomy*, it is of the utmost Consequence thoroughly to understand the Circulation of the Blood; for besides what I have said under the Titles, *Blood, Heart, Systole, Diastole*, and *Aorta*, it may be proper

per farther to take Notice here, and shew what is meant by an *Artery*, and afterwards, what is understood by a *Vein*. For really, most Farriers are so very ignorant, that they are in the dark, with relation to this so necessary Piece of Knowledge, in their Practice. The *Ancients* were not acquainted with the Circulation of the *Blood*, neither the *Moderns*, till that glorious *Luminary* of our *Isle* first paved the Way to it; I mean the renowned *William Harvey*, born at *Folkston* in *Kent*, and bred in *Clare College Cambridge*, where he commenced Doctor in *Physick*; studied five Years at *Padua* in *Italy*; and when he returned, was made *Physician* to King *Charles* the First. I say, this great Man, to whom we are so much indebted for a Discovery so essentially necessary for us to understand in curing Diseases, was a great Benefactor to the College of Physicians in *London*, and died in the Year 1657, aged 80 Years. He was never married but rather immortalized his Name by his Books *de Circulatione Sanguinis*, *de Generatione*, & *de Ovo*, &c.

The Word *Artery*, as some imagine, is derived from *ἀήρ* *Air*, and *ῥησσω* *servo*, to keep; for the Antients had a Notion of their inclosing a great deal of *Air*; but others, who understand their Use better, derive it *ἀπὸ τῆς ἀρπύης*, because it continually rises up with a Pulse-like-Motion. There are indeed three *Ducts* or Pipes in the Body, to which the Name is ascribed and applied, in which the *Arterial Blood* does not flow as in the rest of the *Arteries*. And I must so far acknowledge my Ignorance in this Matter, that I do not really understand why these three *Ducts* should be called *Arteries*; especially two of them; they are the *Aspera Arteria* or Wind Pipe, the *Arteria Pulmonalis*, and *Vena Arteriosa*, which last is a plain contradiction. But indeed, all the Vessels which convey Blood from the Heart, more properly are hereby included; and which is of that Consequence to be well acquainted with, as deserves a particular Description: For really, most Farriers call all the Vessels in the Body, without Distinction, *Veins*, and have no Notion of what is meant by an *Artery*. First then I say;

An Artery
described.

An Artery is a Conical Canal, conveying the Blood from the Heart to all Parts of the Body. Each Artery is composed of three Coats, of which the first seems to be a Thread of fine Blood-vessels and Nerves, for nourishing the Coats of the Artery: The Second is made up of Circular, or rather Spiral Fibres, of which there are more or fewer Strata or Coverings, according to the Bigness of the Artery. These Fibres have a strong Elasticity, by which they contract themselves with some Force, when the Power, by which they have been stretched out, ceases; in like Manner as a Piece of Cat-Gut or Fiddle-String will do. The Third and inmost Coat is a fine, dense, transparent Membrane, which keeps the Blood within its Canal, which otherwise, upon the Dilatation or stretching out of an Artery,

Artery, would easily separate the Spiral Fibres from one another. As the Arteries grow smaller, these Coats grow thinner, and the Coats of the Veins seem only to be Continuations of the Capillary Arteries; and are formed much thinner, because that Stress or Pressure of Blood does not lie against their Sides, as it does against the Arteries. And it is, in this Particular, so through the whole Animal Machine, Nature has shewn her admirable Mechanism and Workmanship: For if the Arteries were not formed of such Constructure, how much more incident would any Animal be to dangerous Aneurisms or over stretching of the Arteries! This is so plain, that I scarce need insist upon it; and I could give a Number of Instances, where both Men, as well as Horses, have been plunged into the difficult Case of an Aneurism, even by only wounding with a Lancet, or Fleam, the uttermost coat of an Artery: For by this unskilful Blooding, the Coats (I mean the two sound Coats) are not able to resist the Pulsation of the Artery, but are forced to yield and give Way; so that in Process of Time, the Tumour from Arterial Blood will become as big as one's Head. The Cure of which, when practicable, may be seen under the Chapter of an *Aneurism*.

The *Pulse* is thus accounted for: When the Left Ventricle of the Heart contracts or draws together, and throws its Blood into the Aorta or great Artery, the Blood in the Artery is not only thrust forward towards the Extremities, but the Channel of the Artery is likewise dilated; because Fluids, when they are press'd, press again to all Sides, and their Pressure is always perpendicular to the Sides of the containing Vessels: But the Coats of the Artery, by any small *Impetus* or Force, (as one Bowl striking against another) may be distended. Therefore, upon the Contraction of the Heart, the Blood from the left Ventricle will not only press the Blood in the Artery forwards, but both together will distend the Sides of the Artery. When the *Impetus* of the Blood against the Sides of the Artery ceases, that is, when the left Ventricle ceases to contract, then the Spiral Fibres of the Artery by their natural Elasticity or Springiness, return again to their former State and contract the Channel of the Artery, till it is again dilated by the Systole of the Heart. This Diastole of the Artery is called its *Pulse*; and the Time the Spiral Fibres are returning to their natural State, is the Distance between two Pulses. This *Pulse* is in all the Arteries of the Body at one and the same Time; for while the Blood is thrust out of the Heart into the Artery, the Artery being full, the Blood must move in all the Arteries at the same Time. And because the Arteries are *Conical*, and the Blood moves from the *Base* or larger End of the *Cone*, to the *Apex* or Point; therefore the Blood must strike against the Sides of the Vessels, and consequently every point of the Artery must be dilated at

The *Pulse* in the Arteries accounted for.

the

the same Time that the Blood is thrown out of the left Ventricle of the Heart: And as soon as the *Elasticity* of the Spiral Fibres can overcome the *Impetus* of the Blood, the Arteries are again contracted. Thus, two Causes operating alternately, the Heart and Fibres of the Arteries, keep the Blood in a continual Motion.

The chief Distribution of the Arteries.

The chief Distribution of the Arteries is into the *Aorta Ascendens*, and the *Aorta Descendens*, from which they are branched, like a Tree, into the several Parts of the Body.

I shall not trouble the Reader with a particular Account of the Ramifications or Branching out of the Arteries from the *Aorta* under this Chapter, but rather choose to give an Account of the most considerable of them, as they fall in my Way, when I come to treat of the *Distempers* which require Manual Operation. And I judge this as the better Method; because *Farriers*, when they are obliged to perform any Operation, may, under such *Heads*, at once see what Hazard they run of wounding an *Artery*. Therefore I shall now proceed to shew the Difference between an *Artery* and a *Vein*.

The Arteries and Veins accompany one another for the most part thro' the Body.

The *Arteries* are mostly accompanied by *Veins*; that is, wherever a *Vein* is opened, you are to consider an *Artery*, as big as the *Vein*, is near at Hand. And although *Nature* has indeed (with her usual *Oeconomy*) very well guarded the *Arteries* against the blundering *Operator*, by placing them deeper, or more hardly to be come at, than the *Veins*; yet every one must have heard what terrible and dangerous Consequences have befallen those Creatures, whether *Human* or *Brute*, who have had the Misfortune to have an *Artery* cut by Accident, or otherwise.

A *Vein* described.

The *Veins* are only a Continuation of the extreme *Capillary Arteries* reflected back again towards the *Heart*, and uniting their Channels as they approach it, 'till at last they all form three large *Veins*; viz. the *Vena cava descendens* or descending hollow *Vein*, which brings the Blood back from all the Parts above the *Heart*; and the *Cava ascendens*, which brings the Blood from all the Parts below the *Heart*; and the *Vena Porta*, which carries the Blood to the *Liver*. The Coats of the *Veins* are the same with those of the *Arteries*, only the Muscular Coat is as thin in all the *Veins*, as it is in the *Capillary Arteries*; the Pressure of the Blood against the Sides of the *Veins*, being less than that against the Sides of the *Arteries*.

No Pulse in the Veins, and the Reason way.

In the *Veins* there is not any *Pulse*, because the *Blood* is thrown into them with a continued Stream, and likewise because it moves from a narrow Channel to a wider. The *Capillary Veins* unite with one another, as has been said of the *Capillary Arteries*.

In all the *Veins* which are perpendicular to the *Horizon*, (I mean in *Horses*, for in *Human Bodies*, the *Veins* of the *Uterus* and

and the *Porta* are excepted) there are small Membranes or *Valves*: Sometimes there is only one, sometimes there are two, and sometimes three, placed together like so many half Thimbles stuck to the Sides of the Veins, with their Mouths towards the Heart. These Valves are, in the Motion of the Blood towards the Heart, pressed close to the Sides of the Veins; but if the Blood falls back, it must fill the *Valves*; and they being distended, stop up the Channel, so that little or no Blood can repass them. And that this is the Case of a Horse troubled with the *Farcin*, (commonly called the *Farcy*) appears from the hard knotty Tumours in the Veins, especially of the Legs, Thighs, &c. which shew themselves in this Distemper. For the Blood is, in such Case, too viscous or clammy, and subject consequently to a Lensor or Slowness in Circulation: Therefore, in supporting its perpendicular Pressure, the Veins are more than ordinarily stretched, and the Valves strained accordingly; insomuch, that they appear plainly through the Skin or Hide.

Let any one but consider this last Piece of Mechanism, I mean of the *Valves* or Flaps, in the Manner as the Leathern Flaps in a Pump Box, which are, as I have already said, designed by Nature to sustain the Blood in its perpendicular Pressure, and thereby ease the Heart; so that its *Systole* or Contraction, need not be strong in order to drive the Blood round the Body, as would, without these Valves, have been necessary; I say, let any one consider even this smallest Piece of the Creator's Architecture in Brutes as well as Human Bodies, and then tell me whether we are not (as the *Psalmist* says) wonderfully formed.

No less surprising is God's Handy-work in creating Animals in such Manner, as that the Blood in the *Vena cava descendens* should not press upon and hinder that in the *Vena cava ascendens* from entering the right *Auricle* or Ear of the Heart: and in order to take off this Hindrance, there is a small *Protuberance* just where the ascending and descending Trunks of the *Cava* join, which not only hinders the descending Blood from pressing the ascending, but, moreover, diverts both into the *Auricle*. Now in this Case, a *Valve* would not have done the Business; for there would then have been some, tho' less perpendicular, Pressure from the descending upon the ascending Blood in the *Cava*: But by this Contrivance, the descending Blood from the Parts above the Heart, does not in the least incommode the Passage of that below the Heart, but is supported by the *Protuberance* mentioned; in the same Manner as a long Stone put into a Wall to support a Weight above it; as is common among Builders to perform, when they would have the Work project or jut out beyond the naked Face of the Wall, Pedestal, &c.

As

As I have said in the Close of my Discourse upon the Arteries, so I shall say with relation to the Veins, viz. that I now forbear a particular Description of them; but shall mention the most considerable Branches, as they occur to me, when I treat of the Distempers incident to Horses.

Thirdly, I shall shew what is meant by an *Animal Fibre*; by reason such Knowledge is absolutely needful to those who are concerned in the Cure of Distempers, whether in Human or Brute Creatures.

A Fibre described.

A *Fibre* is an Animal-Thread, of which there are different Kinds; some are soft, flexible, and a little elastic; and these are either hollow, like small Pipes, or spongy, and full of little Cells, as the *Nerves* and fleshy *Fibres*. Others are more solid, flexible, and with a strong Elasticity or Spring, as the membranous and cartilaginous *Fibres*. And a third Sort are hard and flexible, as the *Fibres* of the Bones. In fine, the whole *Animal Body* is nothing else, but a Composition of several Kinds of *Fibres*; and of these some are very sensible, but others destitute of all Manner of Sense or Feeling: Some so very small as not to be easily perceived; and others, on the contrary, so big as to be plainly seen with the naked Eye: And most of them, when examined with a *Microscope* or Magnifying Glass, appear to be composed of still smaller *Fibres*.

These *Fibres* first constitute the Substance of the *Bones*, *Cartilages*, or *Gristles*, *Ligaments*, *Membranes*, *Nerves*, *Vains*, *Arteries*, and *Muscles*. And again, by the various Texture and different Combination of some or all of these Parts, the more compound Organs are framed: such as the *Lungs*, *Stomach*, *Liver*, *Legs*, and *Arms*, the Sum of all which makes up the *Animal Body*.

As for that particular Property of *Elasticity* or Power of Contraction, after the *Distractive Force* is removed, upon which the Knowledge of the *Animal Mechanism* so much depends, too much Pains cannot be taken for rightly Understanding it. And

First, It is well known that any *Vessel* or *Membrane* may be divided into very small *Fibres* or Threads, and that these Threads may be drawn out into a very considerable Length without breaking; and that when such external Force is removed, they will again restore themselves to their proper *Dimensions*: It is further also manifest, that this Property is preserved to them by a convenient Moisture, because if one of these Threads lie dried, it immediately loses it; so that upon the Application of any Force to stretch it, it will break; as also will its lying soaked in Liquor too much, render it *flaccid* or flabby, and destroy all its Power of *Restitution* when distended.

Now

Now some Hints of that Configuration of Parts, upon which this Property depends, may be had from the Contrivance and Properties of *Syringe* or *Squirt*, with the Reasons why it is so difficult to draw back the *Embolus* or *Piston*, when the *Cylinder* or *Pipe* in which it plays, is stopped; and the Necessity of any *Liquor's* following it, wherein the *Pipe* is immersed or dipt.

All that is necessary to this Contrivance is, that the *Embolus* be so exactly adapted, or fit to the inner Surface of the *Barrel*, as to prevent any *Air* passing between them when it is drawn up; that it matters not what Figure the *Barrel* is of, so that the *Embolus* is well fitted to it, and it might easily be contrived to make a Case of *Syringes*, wherein every *Barrel* may also serve as an *Embolus* to its Exterior, which immediately includes it: And in this Manner, it is not at all difficult to imagine a continued Series of Particles so put together, that the inner may be moved and drawn upon one another, without suffering the *Air* immediately to enter into the *Interstices* or *Divisions*, made by their *Disfracti*on or being stretched: Whereupon, as soon as that Force which drew them is removed, they will, for the very same Reason as the *Embolus* of a *Syringe*, rush up again into their former Contracts.

I could farther illustrate this Theory by demonstrating, that all the *Fibres* in a living *Body* are in a State of *Disfracti*on, that is, they are drawn out into a greater Length than they would be in, if separated from any Part, and taken out of the *Body*; which plainly appears upon any *Solutio Continui*, or dividing of the Parts by a *Wound*, &c. I mean where such Division is transverse or a cross. But this Explanation might, perhaps, seem a little too prolix for my intended Brevity: I shall therefore conclude with saying, that when the *Arteries*, which (as I have shewn) are a Composition of *Fibres*, are raised by the Impulse of the Blood from the *Heart*, to a certain Measure or Pitch, wherein their Endeavours of Restitution will exceed the Impulse that raised or distracted them, their *Contractile Powers* will draw them again into the same Dimensions they were in before such Impulse, and consequently the Blood will be thrust forward into the next Section of the *Artery*, and so on successively from one to another through the whole Course of its *Circulation*; the Contraction of one Section of an *Artery* being the true Cause of the Blood's Impulse against, and raising the next.

The most natural Consequence of this Motion will be breaking still smaller the Parts of that Fluid, which is dispensed to lubricate or facilitate the Motion of the *Fibres*; which Comminution will continue till it is rendered so fine as to fly off at the Surface whenever it happens to get there; and that which thus insensibly flies off, is the true *Materia Perspirabilis* of *Sanctorius*, which that Author has so learnedly treated upon.

Sanctorius's
Materia
Perspirabilis, what.

But,

But, before it is so broke, and serves for the Purposes aforementioned, it is that which is to be understood by the common Terms of *Animal Spirits* or *Oil*, *Liquidum Nervosum*, *Succus Nervosus*, the Nervous Fluid or Juice, and the like; and any Thing else, denominated a *Spirit* in a *Human Body*, (that is not subject to Mechanical Laws) belongs to another Order or Set of Men to explain; but in my Thoughts, lies quite out of the Reach of that Reason, which a Physician is compelled to take up for his surest Guide. And I hope to shew in the Sequel of this *Treatise*, that a Practice founded upon innate Principles, occult Qualities, Metaphysical Dreams about Principles and Ends, &c. is a Practice which cannot bear the Test, but consists in the Nugatory Productions of Reason misemployed. But that this was the Case of most of our Antient Authors in *Physick*, as well as the Science I now write upon, is too plain to admit of the least Controversy.

A Nerve
described.

Fourthly, I shall shew what is meant by a *Nerve*, and then proceed to give an Account of the *Distempers* which affect all or any Parts of the Body of this so serviceable a Creature, which I am treating of.

A Nerve is a long and small Bundle of very fine Pipes or hollow Fibres, wrap'd up in the *Dura* and *Pia Mater* or the two outermost Membranes of the Brain.

The *Pia Mater*, which is an exceeding fine thin Membrane immediately covering the Brain, not only covers all the Nerves in common, but also incloses every Fibre in particular.

The Spinal
Marrow
what.

The Medullary or Marrowy Substance of the Brain, which was by the *Latins* called *Medulla Oblongata*, is that Part of the Brain within the Scull upon the back Part, which is the Origin or Beginning of the *Spinal Marrow*; and this Medullary Substance is the Source and Fountain of all the Nervous System in Human and Brute Creatures. It passes through a Hole in the hinder Part of the Scull, down the *Vertebrae* or Bones of the Neck and Back, and from thence sends out Branches to the Chest, Abdomen or lower Belly, Limbs, &c.

The spinal
Marrow the
Seat of Sen-
sation in all
Animals.

The *Medulla Oblongata* is accounted the common Sensory or Seat of Sensation in all Animals, and although the Antients imagined the Soul to have its Seat in the Stomach, by reason of that Bowel's being indued with so exquisite a Sensation; and after them the Moderns fancied it took up its Residence in a Gland situate upon the upper Part of the Brain, found out by *Pineus*, and therefore term'd *Glandula Pinealis*; though *Snape* will have it from its Shape, which is like a Pine Kernel, to be called Pineal: I say, this Glandule was the famous *Des Cartes's* imaginary Seat of the Soul; though in my Opinion, this Author seated the same very homely: For this Gland in a Human Body, does not exceed the bigness of a Pea, and is placed

placed in the very *Anus* of the *Brain*, and no doubt serves for the same, and no other Purposes.

The Medullary Substance of the Brain is the Beginning of Each Fibre of the Nerves, as I have already said; and it is very probable that each Fibre of the Nerves, answers to a particular Part of the Brain at one End, and to a particular Part of the Body at its other End; that, whenever an Impression is made upon such a Part of the Brain, the Sensitive Soul may know that such a Part of the Body is affected.

The Nerves do ordinarily accompany the Arteries through the whole Body, that the Animal Spirits may be kept warm, and moving, by the continual Heat and Pulse of them. They have also Blood-vessels as the other Parts of the Body; and these Vessels are not only spread upon their Coats, but they run also among their Medullary Fibres, as may be seen amongst the Fibres of the *Retina*, (a fine thin Membrane at the Bottom of the Eye, immediately spread upon the Optic Nerve) which I shall describe when I come to treat upon the Distempers of the Eye. Therefore, at present I shall close this Description of the Nerves, for it would be tedious to the Reader to enumerate the *ten pair of Nerves*, which arise immediately within the Scull, as also the thirty pair which branch out between the Vertebrae or Bones of the Neck and Back, *viz.* seven Pair of the Neck, twelve of the Back, five of the Loins, and six of the *Os Sacrum* or Bones next the Dock: The great Branches of these last, with a Branch of the fourth Pair of the Loins, make the *Nervus Sciaticus*, which (in human Bodies) is the Seat of the *Hip-Gout* or *Sciatica*; and in Horses, no doubt, there often happens a Pain in the Hip, which makes the Muscular Flesh, on that Side, waste and fall away. So that it is frequently mistaken for a Dislocation of the Hip-Bone.

Lastly, I shall (as briefly as may be) shew what Respiration is; for, certainly there is an absolute Necessity of understanding how this is performed, otherwise a Person can but have very dark Notions of the Animal Oeconomy.

And first, it is observable, that by blowing into a Bladder, a considerable Weight may be raised by the Force of our Breath. For with a Bladder that is oblong, nearly of a Cylindrical Figure, and tied at both Ends, if a Pipe be fixed at one End and a Weight at the other, and the Pipe fastened at such a Distance from the Ground, as just to allow the Weight to rest upon the Ground; the Bladder by an easy Inspiration, will raise half a Stone Weight or seven Pound, and by the greatest Inspiration of a pretty strong Man, it will raise two Stone or 28 Pound Weight.

Now the Force by which the Air enters this Pipe, (which conveys it to the Lungs,) is that same Force by which it is driven out of the Lungs: If therefore the Force by which the Air

enters the Pipe can be determined, we shall have the Force by which the Air is drove into the *Aspera Arteria* or Wind-Pipe.

The Pressure of the Air upon the Bladder, is equal to twice the Weight it can raise, because the upper Part of the Bladder being fixed, it resists the Force of the *Air*, just as much as the Weight at the other End. And again, since the *Air* presses every way equally, the whole Pressure will be to that Part of it, which presses upon the Orifice of the Pipe, as the whole Surface of the *Bladder* is to the Orifice of the Pipe: That is, as the Surface of a *Cylinder*, whose Diameter for Instance is four *Inches* and Axis seven, is to the Orifice of the *Pipe*.

internal Sur-
face of the
Lungs equal
to 14412 lb.
Weight in
Human Bo-
dies.

To explain this yet farther, according to the nicest Calculations, it would appear liker a *Romance* than a true *History*; although it is certain that there is, even in *Human Bodies*, a Pressure of *Air* upon the Internal Surface of the *Lungs*, equal to 14412 Pound Weight; and therefore, how much more the *Air's* Pressure upon a *Horse's* *Lungs* exceeds this Account, I leave any one to judge. And although these seem to be prodigious Weights, yet it must still be understood, that the Pressure upon each Part of the Surface of the *Lungs*, equal to the Orifice of the *Larynx* or top of the Wind-Pipe, is not greater than it is at the *Larynx* itself. And that these vast Weights arise from the vast Extent of the Surfaces of the *Vesicles* or little Bladders, upon which it was necessary that the *Blood* should be spread in the smallest Capillary Vessels; that each *Globule* of *Blood* might, as it were, immediately receive the whole Force and Energy of the *Air*, and by it be broke into smaller Parts, fit for *Secretion* or Discharge, and likewise for Circulation.

From whence we may learn the Mechanical Reason of the Structure of the *Lungs*: For, seeing the whole Blood of the Body was to pass through them in order to receive the vivifying Virtue of the *Air*, and this could only be communicated to it by small Capillary Vessels; I say, in such Case, it was absolutely necessary that the Surfaces upon which these Vessels were to be spread, should be proportioned to their Number, and this is admirably well provided for, by the wonderful Fabric of the *Lungs*.

If the Gravity of the *Air* was always the same, and if the Diameter of the *Trachia Arteria*, sometimes called *Aspera Arteria* or Wind Pipe, and the Time of every *Expiration* or driving out of the Breath, were equal in all Creatures, this Weight upon the *Lungs* would be always the same. But since we find by the *Barometer*, that there is three Inches Difference between the greatest and the least Gravity or Elasticity of the *Air*, which is a tenth Part of its greatest Gravity; there must be likewise the Difference of a tenth Part of its Pressure upon the *Lungs*

Lungs at one Time more than another. For the *Momentum* of all Bodies, mov'd with the same Velocity is as their Gravities.

This is a Difference which such as are *asthmatick* (or what in Horses is generally called a Broken Wind) must be very sensible of; especially if we consider, that they likewise (I mean the Asthmatick) breathe thicker, that is, every Expiration is performed in less Time: And if in half the Time (as is common by Observation) and the same Quantity of Air drawn in, then the Weight of the Air upon the Lungs must be 57648 Pound of which a tenth Part is 5764 Pound: (I mean this Calculation for Human Bodies.) And in such Case, asthmatick People upon the greatest Rise or fall of the *Barometer*, feel a Difference of the Air, equal to above one Third of its Pressure in ordinary Breathing.

Lastly, If the *Aspera Arteria* or Wind Pipe is small, and its Aperture or Orifice, at the *Larynx* or Top of it, of a narrow Conformation, the Pressure of the Air increases in the same Proportion, as if the Times of Expiration were shorter; and upon this Account, a shrill Voice is always reckoned among the Prognostick Signs of a Consumption, because that proceeds from the Narrowness of the *Larynx* or Orifice of the Wind Pipe; and consequently increases the Pressure of the Air upon the Lungs, which upon every Expiration, beats the Vessels so thin, that at last they break; and in Human Bodies, as a spitting of Blood brings on a Consumption a-pace, so in Horses it is nearly the same; for I have seen such thick Winded ones often troubled with Bleeding at the Nostrils, &c. which mostly terminated in the *Glanders*, and *Death* in the End.

I think it is now high Time to ask Pardon for these long, though necessary Digressions, and return to the Text, viz. of Surfeits in Horses.

I have hinted under the first Page of this Chapter, that Surfeits proceed mostly from foul Feeding and undue Exercise, or from both; For as in such Cases, a Horse's Blood is either over charged, or too much exhausted; the same ills may, notwithstanding, flow from it, viz. undue Secretions or Discharges, which when brought a little to rights, and that the Blood partly recovers its proper Texture; I say, then it is that *Hæmorrhages* or Bleedings at the Mouth, Nose, &c. happen by a *Distraction* or breaking of the small Fibres; or otherwise the Distemper appears in little *Pustules*, or knotty Tumours among the Hair, which are for the most Part accompanied with sweats: And if so, the Disease will soon be at its *Crisis* or Height: But if the Blood by foul Feeding, has acquired a more than ordinary *Viscidit*y or Clamminess, it will be apt to stagnate or stop in some particular Parts, and cast off the Enemy in larger Tumours, such as Boils or Abscesses,

The Signs of a Surfeit.

which require cutting open, and Topical or outward Applications afterwards.

Mr. Gibson's
Opinion of a
Surfeit cen-
sured.

Mr. Gibson in his Book of Farriery, tells us a tedious Story about "the Excrement or Dung of Horses resting so long in the Guts, and thereby creating a more than ordinary Putrefaction, from which proceeding Acid and sharp Juices, which become a Stimulus to the Guts, and at last end in a Looseness," And this Mr. Gibson imagines to be one Degree (or rather Symptom) of a Surfeit: But for my own Part, I cannot remember ever to have seen such a Case as this Author describes; nor indeed are Horses much afflicted with Loosenesses, because the *Prone* or *horizontal Posture* this Creature's Body is formed in, guards him (as much as may be) against such Discharges; and this is observable when we give a Horse purging Physick; for it is the Posture (before described) which makes the Medicine rest so long as (mostly) 24 Hours, before we observe any Appearance of it's Operation.

In general, when a Farrier sees a horse with a staring Coat, and his Hide sticking to his Ribs, he immediately pronounces him to be a Surfeited Horse, although he considers not but such Symptoms may proceed from want of good nourishing Food, and a proper Sufficiency of it. In fine, I think, under this Head should not be ranked any other Distempers, which do not take their Rise from foul Feeding, or over Exercising: For, from these, in my Opinion, most of the Ailments (which may be termed Surfeits) take their Origin or Source.

The Cure.

In the first Place if a Surfeit proceeds from foul Feeding, or over-Feeding, and Want of sufficient Exercise, most or all the Evacuations, such as Bleeding, and likewise Purging both by Stool and Urine, are necessary.

A great Error in Feed-
ing.

But I have many Times observed, that People expect when their Horses do little, they should be fat, and well-liking in the Stable, provided they have only Hay (and that indeed very often of the worse Sort) given them; or that they require little or no Oats, &c. which is a great Error; for, Hay in its Nature is so drying, that a Horse must even swill to dilute, otherwise he cannot digest it; and this fills his Belly to such a Degree, that the *Diaphragm* or Midriff is press'd upon the Lungs, which require Room to expand and stretch themselves. I say, these with a great many more Inconveniencies proceed from feeding Horses with too much Hay; so that I advise those Gentlemen, who design to keep Horses in this cheap Manner, rather not to keep any Horses at all: Since the Farrier and his Prescriptions may amount to more than the Price of the Corn might have done, which would have kept the Creatures brisk and lively, and fit to do Business; whereas a Horse that eats very little besides Hay, yields very little more Benefit, besides his Dung, to the Owner, and may truly be termed a Con-

Conduit-Pipe from the Hay-Mow to the Hay-Meadow. Of so little Service is such a Horse for the Road.

I would be understood to speak in General ; for I own that some Horses are of so fortunate a Make and Constitution, that they will look pretty sleek and well, even with Hay alone, provided it be very good and sweet, and given to them by a little at once, well shaken from Dust, &c. But there are few Horses of so hardy a Disposition as to thrive well in the House with Hay alone : And although most Dealers would have you believe that they give their Horses very little Corn ; I could never yet meet with one (from their Hands) but required more than common Care, as well as a good Quantity of Oats, otherwise the Horse would look much worse in a very little While.

Secondly, a Surfeit may proceed from undue or too laborious Exercise, and catching Cold upon it. This very much endangers his Wind, as the Lungs are from their soft Contexture or Make, exceedingly susceptible of Impressions from Cold ; which in plain English, is the *perspirable Matter* hindered from being discharged by the Pores in the Hide, which on taking Cold, contract themselves so closely, that such Excrement (for, I can call it no other) is obliged to pass along with the Blood in Circulation, and therein raises violent Commotions, and great Disorders in the Lungs, Brain, &c. but mostly in these two principal Parts of the Body, for the Reason just now assigned, *viz.* their soft Constructure, which soonest takes the Impression. In this Case Bleeding may be dispensed with ; but, above all, keeping the Horse's Body very warm all over with Blankets, or such like, and bedding or littering him down with dry clean Straw, are the greatest Preservatives against Surfeiting upon hard Exercise ; for Warmness of this Sort forwards Perspiration to a high Degree ; and this is, in Reality, *taking away the Cause of the Disorder, which is the true Way of curing Diseases.* And another Thing may be said in Favour of this Method, which is, that it assists Nature in opening the Passages she designed, *viz.* the Pores of the Hide ; and no Doubt but it will answer our End better than any other of the Emunctories or Out-lets, because we forward the Exit of that Excrement, which Nature designed should be thrown out this Way.

The Reason why the Lungs are sooner affected with Colds than other Parts of the Body.

Nothing cold should be given a Horse to drink upon his Perspiration being obstructed, or, in other Words his having caught Cold ; for such Things are opposite to the main Intention of Cure, *viz. promoting Perspiration* : Therefore give him Water milk-warm for a few Days ; and it will be much better if you mix a little Oat-meal with it, or rather (if the Horse will drink it) a little of my *Cordial Ball*, as prescribed in my Notes upon Capt. Burdon's Pocket-Farrier.

Nothing cold should be given a Horse to drink upon obstructed Perspiration.

Mr. Gibson directs *Sal Prunellæ*, or purified Nitre, to be infused in the Water ; and I cannot say but it may be serviceable,

as it is a powerful *Diuretic*, or promoter of Urine ; But some Horses are so nice. that they will refuse such medicated Waters ; though I fancy one might bring them to drink it, by keeping them from Liquids for some Time, and that may certainly be done, (in the Cases I am speaking of) without the least Danger or Hazard of hurting the Horse by such Abstinence.

Mr. Gibson's
Opinion justified.

This Author farther very justly observes, that when Nature is put out of the Course she designed to discharge or carry off any peccant or offending Humour ; in such Case there mostly happens an imperfect Crisis, from which proceed the *Mange, Farcin, Lameness, Blindness, &c.* And that this is too often the Case, and wholly owing to the Doctor's Prescriptions, which obstructed Nature in her Design, is too evident to admit of a Dispute : But such there are, and such there will be, while the World endures, whose pretended Learning is built upon so sandy a Foundation, that it will not bear a Scrutiny ; but, upon the Application of the Touch-Stone of *Natural* or *Experimental Philosophy*, their Writings will appear no better than mere *metaphysical Dreams*, or *philosophical Romances* of trifling Sages ; such as were the Works of the old *Physical* and *Metaphysical Philosophers* of *Greece*. And although the *English* Nation in particular seems to have a great Veneration for what is antient, yet the antient Physicians, and present Farriers, were much upon a Level as to Learning, provided we impartially examine the Writings of both. And I dare undertake to make this out plainly to the World, against all Favourers of *Hippocrates* or *Galen*, whenever I am put upon it by any Person worth my while to answer : That is, I will make it appear, that these so venerable Gentlemen, notwithstanding the latter writ (or was said to have writ) 200 Volumes, made full as many Blunders as our present Farriers, in the *Methodis Prescribendi* or Manner of prescribing : For, both the *antient Physicians*, as well as present *Farriers*, seem to pin their Faith more upon the *Number of Ingredients* jumbled into a *Prescription*, than on any one as the *Basis*, or to which the *Cure* is wholly owing. But to return.

Antient
Physicians
and present
Farriers
much upon a
Level as to
Learning.

Staring Coat
or Hide-
bound.

If a Horse has a staring-Coat, and is clung up in his Belly, boiled Barley is proper for him ; as is also scalded Bran once a Day, with half an Ounce of *Crude Antimony* in fine Powder strewed upon it, every Time you give it him ; and after a Week's Use of these, you may purge him two or three Times at proper Intervals, according as you find he bears it : But if the first Purge don't operate, you are not (as the common Method is) to throw a second Dose into the Horse ; for many are killed by such a Trick, though the Owner perhaps never hears the true Cause of his Horse's Death. I say, it is a vulgar Error to imagine that a purging Medicine will do great Damage, provided it happens not to work much by Stool ; for it may by Urine and Sweat (which Course it generally takes, if it be not strong

strong enough to go off by Stool,) do more Service than if it had been made stronger; and that the greatest Feats are performed by what we call *Alteratives*, or such Medicines as have not any immediate sensible Operation, but gradually gain upon the Constitution, by changing the Humours from a State of Distemperature to Health. And it is now found very serviceable to give such Medicines as are properly *Cathartic*, by way of *Alteratives*, in stubborn *chronical Cases*. Thus the *Tinctura Sacra*, or Tincture of *Hiera Picra*, (in Human Bodies) given in the Quantity of half a Spoonful for a Dose, has no immediate Effect upon the Intestines, so as to discharge their Contents, but passes on to the farther Stages of Circulation, and often does more Service by this Way of operating, than if administered in a larger Dose. But most People are so desirous to gratify the outward Senses, that they are never easy, unless they see something before their Eyes, which is ejected out of the Body, and appears excrementitious: Therefore, to such impatient Creatures, *Alterative Medicines* are not agreeable; though People of this Temper often meet with their Desert, and are made to believe that they Vomit yellow nasty Phlegm and slimy Matter, when it is only the Juices of the Stomach (tinged by the Medicine they have taken,) which are thrown up by Vomit. And of all other Purgatives, I think the *Gamboge-Pill* best suits such Folks; for this generally begins its Operations with a Puke of yellow slimy Matter, which the poor deluded Patients think must be exceedingly beneficial to them, as it looks so yellow and nasty; whereas it is no other than the *Gamboge* which Tinctures the Juices of the Stomach, and causes them to appear in the Manner I am speaking of.

From whence it will be evident, that greater Service may be done in obstinate *chronic Cases* by *Alterative Medicines* given to Horses, than to Human Bodies; for we can venture upon much larger Doses even in Proportion to the Bigness of these two Subjects, and the Diameter of their Vessels; that is, a *Cathartic* or purging Medicine will Operate in *Man* in a smaller Dose, as the Subject is *Man*, so as to carry off the Excrements by Stool, than it will do in a Horse, notwithstanding the different Constitutions of these two *Animals*: For the *prone Posture* of a Horse guards him (as I have said before) from Discharges by Stool as much as may be; and therefore *Cathartics* may be given in pretty high Doses, which only (according to the *Idiosyncrasy* or peculiar Temperament of Horses Bodies) operated as an *Alterative*. So that I advise never to toss in one Purge upon another, when the first does not work, but let the Horse alone a Week, and heighten the Dose then, provided Purging be thought absolutely necessary: But, no doubt, it is in Horses as in Human Bodies, with Relation to this Particular; for really there are some, both Men and Horses, that it is hazardous to

Some Hor-
ses, as well
as Men, very
hard to
purge,

give them such a Dose as will purge them to a common Degree: Therefore, when this so falls out, it is best to carry off the Cause of the Disorder through some other Outlet, which Nature is not so much bent against, as she is to this particular Discharge by Stool.

CHAP. IX.

Of Diseases of the Head. And first, of the Head-Ach.

The Head-
Ach,

I Shall begin at the Head of this Animal, and proceed in as regular a Method as I can, to describe each and every Disorder affecting him, from thence to his Hoof, both inwardly and outwardly.

I need not give a particular Description of the Brain and its Meninges, with the Veins, Arteries, and Nerves spread upon it, this being pretty well performed by Andrew Snape, who was Farrier to King Charles the First: But we are most beholden to the famous Malpighi, for a Description of this particular Part of the Body. This ingenious Person nicely examined what we call the Cortical Substance of the Brain, and discovered that it was nothing but a Heap of little Oval Glands that receive the Capillary Branches of the Veins and Arteries which belong to the Brain, and which send out an infinite Number of Fibres, that all together make up the Medullary Substance; which going out of the back Part of the Cranium or Skull, forms the Nerves and Medulla spinalis or spinal Marrow, contained in the Vertebrae or Bones of the Back.

I say a thorough Account of the Brain would be too tedious in this Place, and (unless the Reader understood Anatomy) the Description would be of no Service to him; for there is no such Thing as any Person's learning Anatomy by Theory only, which makes me avoid as much as possible any Thing of that Kind, which may be thought unnecessary. Yet I must not omit now and then to declare the admirable Mechanism and Contrivance of the Creator of the Universe, with relation to the Bodies of Animals, and, as I remember, I have before hinted, that a Vein and an Artery go in Company all over the Body; only the Arteries are better guarded from Injuries, by being placed deeper or under the Veins, so indeed they are, generally speaking; but, in entering the Skull they spread themselves upon the Brain and in this Place they differ, for mighty Reasons, viz. that had the Veins entered the Skull by the same Holes with the Arteries, it would have fallen out, that upon any Turgescence or Swelling of the Blood Vessels, the swelling and Pulse of the Arteries would compress the Veins against the bony Sides of their Passage, and so cause a Stagnation and Extravasation or Loss of Blood within the Brain; which would soon be the Destruction of the whole Machine. Neither do the Veins

Veins run along the Sides of the Arteries in the *Brain*, as they do through all the rest of the Body, but they rise from the Extremities of the Arteries in the *Cineritious* or Ash-Colour'd external Substance, and go straight to discharge themselves into the *Sinus's* of the *Dura Mater*. Cineritious Substance what.

From the Blood which is brought to the Brain by the *Carotidal* and *Vertebral* Arteries, is separated (by the Glands which make the *Cineritious* and *Cortical* Substance) it's finest Parts, call'd *Animal Spirits*, which are receiv'd from the Glands by the Fibres of the Medullary Substance, which is the Origin or Spring of all the Nerves in *Men, Beasts, &c.* And each Nerve, therefore, is a Bundle of very fine small Tubes or Pipes, of which some are no bigger than the Hundredth Part of a Hair; and these Tubes are the Excretory Ducts [or Discharging Vessels of the *Cineritious* or *Cortical* Substance. And this does not only appear from the Structure of the Brain, but by Sensation likewise we are assured, there is such a Fluid as we call *Animal Spirits* in the Nerves, which must be done either by the Substance of the Nerve, or the Fluid which is contain'd in the Nerve. If by the Substance of the Nerve, it must be by a Vibration from the Part upon which the Impression is made to the Brain,

Now that there can be no Vibration from the Impression of external Objects upon *Animal Nerves*, (which are slack, and surrounded all along by other Bodies) is evident; and therefore Sensation must be made by the Fluid in the Nerves. The Motion of this Fluid is not swift and rapid, as is generally supposed, but slow and languid; seeing all it's Motion proceeds from the Dilatation of the Arteries which compress the soft Substance of the Nerves, and from the Force by which it is thrust thro' the Glands of the Brain. And when the Nerves are full of this fine Fluid, the Impressions of Objects may be communicated to the Brain without any quick Motion in the *Animal Spirits*, either by retarding or stopping their progressive Motion, or by causing an Undulation. If to these be added, that the *Animal Spirits* must be confined within their own proper Channels, as well as the other Fluids of the Body, the many *Hypotheses* contrived by Dr. Willis and others, must needs come to nothing. No Vibration in the Nerves from the Impression of external Objects.

The *Nervous Fluid* or *Animal Spirits*, undoubtedly consist of (by far) the smallest Particles in the Blood, as appears by the Minuteness or Smallness of their secreting or separating Glands; and therefore they not being formed by the Cohesion of other Particles, might have been separated any where, or in any Part of the Body. Yet the *Animal Oeconomy* receives a great Advantage by the distant Station of the Brain from the Heart; for if this had been placed nearer, and received the Blood, before divided into its smallest Particles by the Force of the Air in the Lungs,

Dr. Willis's Hypothesis censured.

Lungs, such Particles might have enter'd the *Glands*, and afterwards cohering to one another, might have obstructed such extremely narrow *Channels*.

Now, the *Brain* being plac'd at such a Distance, the Particles (that by their attractive Power form *Corpuscles*) will have sufficient Time to *coalesce* or grow together, and their Magnitude will hinder their entering the *Glands*: For if it should happen that these Particles should enter the *Glands*, and there unite together, they would then obstruct the Passage to the *Nerves*, and produce *Apoplexies*, *Palsies*, &c. The Particles of which the *Animal Spirits* consist, being of such an extreme Fineness, that their Quantity can bear but a small Proportion to the other Fluids in the Blood, and consequently there was a Necessity of a prodigious Number of *Glands* to separate them from it; and this is the true Reason of the great Bulk of the *Brain*.

The true Reason of the Bulk of the Brain.

There is no manner of Doubt, but Horses are subject to *Nervous Disorders*, yet not, by far, so much as *Mankind*, which is chiefly owing to their simple plain *Diet*, adapted to their *Nature*, as well as the Exercise they are subjected to: whereas we (poor unthinking Mortals) toss such a Number of *Solids* and *Liquids* into our *Stomachs* in small spaces of time, and that too often very oddly compounded with *Spices*, and other hot Ingredients; I say this is, no doubt, one great Reason why *Mankind*, in this Age, complain more of *Nervous Disorders* than their *Forefathers*, who made shorter and more simple Meals, and used more Exercise. But to return.

Signs of the Head-Ach in Horses.

The Signs of a common *Head-ach*, or a *Head-ach* in which there is not much Danger, are, *First*, Hanging down of the *Ears* more than ordinary, as also Drooping his *Head*, Dimness of *Sight*, and waterish *Eyes*. But yet the *Head-ach* may proceed from Pains and Inflammations in the *Globe* or Ball of the *Eye* itself: So that it is very hard to distinguish in *Brutes*, whether the *Head-ach* is the Occasion of *Dimness of Sight*, or the Disorder of the *Eye* be the Occasion of the *Head-ach* or Affection of the *Brain*. And I own I cannot easily make the *Reader* a Judge of this Matter; altho' I am pretty confident, that if I had a *Horse* with bad *Eyes*, I could presently tell whether it was an Affection of the *Brain* that occasion'd it, or that the *Humours* of the *Eye* were originally affected, so as to cause a Dimness of *Sight*. I say, I cannot make the *Reader* a Judge herein, because there are a great many Cases which appear plain to me at first *View*, and yet I cannot find Words fully to express my Thoughts, which (I have the Vanity to think) is the true *je ne sçai quoi*; and so let it pass at present. However, I shall prescribe something that will do Service in most *Head-achs*, and that is, *first*, *Bleeding* and *Purging*, according to a *Horse's* Strength, Age, &c. *Secondly*, if the Disorder do not yield to these, I recommend *Roswelling* in several Places at once; for

The Cure.

for one Rowel is of little Avail, for many Reasons; and these One Rowel should continue running a considerable Time, at least a Fort-avails little. night or three Weeks. *Lastly*, the Herb *Asara Bacca* dried and powder'd, and with a Quill, or such like, blown up the *Horse's Nostrils*, so that it may pass a good Way towards his *Brain*: I An excellent say this Powder, used in such a Manner, will perform Wonders Powder for in *Head-achs*, *Distemper'd Eyes* of most Kinds, and such like the *Head-ach* Disorders of the Head; for it will abundantly purge the *Brain*, and distem- per'd Eyes. by causing the *Nose* to run like a *Tap*.

It may be used three Times a Week, and about as much as will lie upon a Shilling each Time. But the *Horse's Head* must be well covered, lest he catch *Cold*, which will bring on a Swelling of the *Glands* of the Throat, &c.

Most People are fond of purging their Horses when they are distemper'd, whether the Case require it or no; for this Sort of Evacuation seems very much to quadrate with the outward Senses, and makes the ignorant Part of Mankind (whose *Heads* are fuller of *Humours* than their *Horses*) imagine that purging Medicines carry off the offending Matter in most Disorders, never considering the general Rule which ought still to be kept in Mind, *viz. that in Proportion to any one Evacuation's being* A General *beighten'd or increased, most or all of the other Natural Evacua-* Rule about *tions are proportionally diminished.* So that in the Main, it is by Evacuations. way of *Revulsion* such Business must be done, which the Vulgar attribute to another Manner of Operation. Lord! How I could laugh when I see a silly stupid Fellow, who thinks himself a *Tip-Top Groom* or *Farrier*, poking and stirring about in a *Horse-T—d* to find Grease, &c. which his bright Notions tell him he has by his *Grand specifick Purge*, or other *Medicine*, fetch'd away from the *Horse's Head* or *Heels*. Whereas this Grease observable in the *Dung* of *Animals*, on such Occasions, comes from no other Place than the *Guts*; which I shall evidently explain, when I come to treat of the Distemper called the Grease in *Horses*.

Lastly, Rowelling may be of Service, as much as any Thing, in obstinate Chronick Cases, where the *Brain* has for a long Time been affected: But it is not one single Rowel which I advise, for that will only make an insignificant *Discharge*, no more in Comparison to the Quantity of *Blood*, and other *Humours* in a *Horse's Body*, than a *Drop of Water* compared to *half a Pint*. No, let me have five or six Rowels in the most proper Parts, and continued for some considerable Time, if the Horse can bear the Loss of what is discharged by such Methods, and then indeed some Benefit may accrue from them: Tho' this is no more than *Revulsion*, or diverting the offending *Humours* to some other Place for *Expulsion*; or rather, driving them into the Mass of *Blood*, and equally mixing it. And that Nature is better able to deal with the offending Particles, when equally mixed with

with the Mass of Blood, than when such Humours are lodged upon some particular Part, is every Day visible. And it is for this Reason, *viz.* that where the Particles of Matter, which are of a *Heterogeneous* Nature, and consequently occasion Diseases, are equally mixed with the Mass of Blood; (as indeed they mostly are in the Origin or Beginning of Distempers, 'till Nature succumbs and is overpowered, when they are thrown upon some particular Part of the Body, whereby the small Capillary Vessels are distended, and form a Tumour, which at last suppurates or breaks to let out the Enemy;) I say, when they are so mixed, all the *Emunctories* or Secretory Glands jointly and severally lend a helping Hand, and each of them assist in carrying off a little of the offending Humour. But on the contrary, if these offending Particles of Matter, happen to lodge or be driven upon any particular Part, the Glands are so stuffed, and their Excretory Vessels become so brushed up, that (as I just now observed) a Tumour is formed; and lastly, a Rupture or breaking of the Capillaries, in order to discharge the *peccant* or offending Humour.

CHAP. X.

Of the Staggers.

FARRIERS for the most Part, term all or most Diseases which affect a Horse's Head, *Stavers* or *Staggers*, and this Disorder in *Human Bodies*, is called an *Apoplexy*, or *Vertigo*; but they are mostly the same Thing, only a *Vertigo* is an easy Fit of an *Apoplexy*; by Reason the self-same *Organs* are affected; and tho' the *Vertigo* or Falling Sickness in *Human Bodies*, does not always terminate in *Death*, yet still it is a slight Fit of an *Apoplexy*, which I shall define after the Manner following.

Apoplexy,
defined.

The Word *Apoplexy* is from the Greek *ἀπὸ πλῆγης*, *percutio*, to strike; because a Creature is as it were suddenly struck with *Death*. It is a sudden Deprivation of all Internal and External Sensation, and of all Motion, unless of the *Heart* and *Thorax*. For the understanding of which, it is necessary to premise, that if by any Means a *Nerve* is tied and compress'd, the Part to which that *Nerve* is directed, loses its *Sense* and Motion. Secondly, That if any *Nerve* is cut, there distils out a *Liquor*. Thirdly, That Motion is performed, by Reason the *Nervous Fluid* is impelled by the Force of the *Arterial Blood*, through the *Nerves* into the *Muscular Fibres*. And lastly, That Sensation is from hence, *viz.* that Objects compress or strike upon the Extremities of the *Nerves* by their Motion; and drive back the *Nervous Fluid* towards the *Brain*.

An

An *Apoplexy* therefore is produced by any Cause which hinders such *Undulation* or wave-like Motion of all the *Nerves* unless of those, which are destin'd to move the *Heart* and *Breast*. But the Reason why the Motions of the *Heart*, and *Thorax* or *Breast* remain, and the *Pulse* and *Respiration* continue when the other Parts are deprived of Motion, is because in every Motion, which is performed by *Muscles* having *Antagonists* or others of contrary Motions to themselves, a Quantity of *Nervous Fluid* must be derived into the Contracting Muscle, not only equal to that which is derived at the same Time into the Antagonist, but greater also. But lest I may not be understood by the Word *Muscle*, I shall endeavour to explain this Anatomical Term as plainly as may be. And first I say.

A *Muscle*, is a Bundle of thin and parallel Plates of fleshy *Threads* or *Fibres*, inclosed by one common *Membrane*, and all the *Fibres* or *Threads* of the same Plate, are parallel to one another, and tied together at extremely little Distances, by short and transverse *Fibres*. These fleshy *Fibres* are composed of other smaller *Fibres* inclosed likewise by a common *Membrane* or thin *Skin*: Each lesser *Fibre* consists of very small *Vesicles* or *Bladders*, into which we suppose the *Nerves*, *Veins*, and *Arteries*, to open; for every *Muscle* receives Branches of all those *Vessels*, which must be distributed to every *Fibre*. The two Ends of each *Muscle* or the Extremities of the *Fibres*, are, in the *Limbs* of Animals, fastened to two *Bones*, the one of which is moveable, the other fixed or immoveable: And therefore, when the *Muscles* contract, they draw the moveable Bone according to the Direction of their *Fibres*.

When the *Muscles* contract in Length, they swell in Thickness as may be perceived by laying the Finger upon the *Masseter* or Muscle of the lower-Jaw, and pressing the *Grinders* or *Axel-teeth* together: But this Power of Contracting or Swelling is lost, when either the *Artery*, or *Nerve* of the Muscle is cut, tied, or otherwise obstructed; as in the Case of a *Palsy*, &c. And therefore, we conclude that the Contraction, Swelling, or Motion of the *Muscles*, is performed by the *Blood* and *Animal Spirits*, distending or stretching the *Vesicles* or *Bladders*, which are the Cavities of the *Fibres*: And this Distention of the *Vesicles* of the *Fibres*, must be, either by their being filled with a greater Quantity of *Blood* and *Animal Spirits*, than they were before the Contraction, or the *Blood* and *Spirits* mixing, must rarify and fill up a greater Space.

That the *Vesicles* of the *Fibres* are not distended, purely by the Quantity of *Blood* and *Spirits*, will appear if we consider, that were the *Vesicles* distended, only by the Quantity of *Fluids* contained in them, *Nature* (whose Operations are always

Apoplexy,
its Course.

A Muscle,
what.

Motion of
the Muscles,
how per-
form'd.

always the most simple) had only used one *Fluid*, and not two; for in the Works of *Nature*, we no where find two necessary *Causes*, where one could have produced the same *Effect*. Now how small soever we suppose the Quantity of *Fluid* brought by the *Nerves* to the *Muscles*, that alone might have contracted the *Fibres*, (if a Quantity of a *Fluid* only had been necessary) by diminishing the *Diameters* of the Cavities or *Vesicles* of the *Fibres*, as will appear plainly to any Person, who is curious enough to enquire into the Property of *Elastic Fluids*, with relation to *Muscular Motion*. Now to return.

I think I have already said, that an *Apoplexy* proceeds from any Cause which hinders the *Undulation* of the *Nerves*, and that a Quantity of *Nervous Fluid* must be derived into a contracting *Muscle*, not only equal to that which is derived at the same Time into the opposite *Muscle*, but also greater: I say this is plainly so, otherwise the Part to be moved would remain in an *Equilibrium* without any Motion at all: And therefore, more of the *Nervous Fluid* must pass into a *Muscle*, that has an *Antagonist*, than that which has none: But the Heart is a *Muscle* that has no *Antagonist*, and consequently it requires a less Quantity of *Nervous Fluid* to continue its Motion, than other *Muscles* destin'd for the Motion of the Limbs. Therefore, if the Cause hindering the *Undulations* of all the *Nerves*, were such, that no Juice could flow through the *Nerves*, the Heart itself would cease from Motion, and Death ensue: But if the Cause be not so powerful, as to take away all the Motion of the *Fluid* through the *Nerves*, but so far only resists their *Dilatation*, that but a very little *Fluid* can pass through them, not sufficient to inflate or blow up those *Muscles* which have *Antagonists*; I say, in this Case, those *Muscles* only will be contracted, which require the least Quantity of *Spirits*, and such no doubt is the Heart.

The Cause
and Cure.

The Impediment to such due *Undulation* of the *Nervous Fluid*, is generally a *Repletion* or *Overfulness*, and this indicates Medicines which are called *Evacuants*, as also *Bleeding*, &c. And in my Opinion, *Bleeding* must be the *premier Resort*, and is most likely to do Service in most Diseases of the *Brain*: And this I am treating of, is a very common one in *Horses*, as well as the *Vertigo* or *Apoplexy* in Man.

Bartholine
calls the In-
ternal Jugu-
lar Veins *A-*
poplectica.

The famous *Bartholine*, calls the *Internal Jugular Veins* *Apoplectica*, from an Opinion of their being particularly concerned in that Distemper. But I am very well convinced, that there is little Difference wheresoever you bleed, either Man or Horse: Since it is plain, that the Benefit which accrues to the Patient proceeds from the Quantity's being lessened; and not so much from the foolishly suppos'd conceit of *Revulsion*; which

which Term as it is yet retained, I judge it may not be improper in this Place to shew how far it may be of Use in *Phlebotomy* or Blood-letting.

The Word *Phlebotomy*, derived from the Greek, φλεβη, a *Phlebotomy* Vein, and τεμνω, *seco*, to cut, signifies Blood-letting; and to explain'd. give due Light into this Affair, which is of such Importance in the Art of Healing, we are to remember, first, *that every Body striking against another, and communicating Part of its Motion thereunto, loses so much of its own Motion or is so much retarded*: Wherefore, the Blood thrown out of the Heart, while it strikes upon the antecedent Blood, and drives it forwards, transfers to it Part of its own Motion or loses so much of it, as is acquired by the antecedent Blood. Yet, in order to a thorough Knowledge of the Matter I am discoursing of, it is absolutely necessary a Man should understand *Angiology*, or the Anatomy of the Veins and Arteries. However, I lay it down in general, as good Practice, to bleed on the contrary Side to that Part affected; because the remaining Blood will circulate faster, and have more Room to do so, and thereby the stagnating Blood (which occasions a Tumour either outwardly or inwardly) will in all probability disperse. But on the other Hand, we must consider, whether the Part affected be supplied with Blood, from the ascending or descending Trunk of the *Aorta* or great Artery, arising out of the Heart. For, suppose the Tumour or Swelling which we would disperse by Bleeding, lies upon the Glands or Muscles of the Throat, we are not to bleed in the Tail or Thigh-Veins, thinking this the most likely, because it is the common Method; no, the Parts above the Heart towards the Head, are fed and supplied with Blood from the ascending Trunk of the large Artery; as those below the Heart or towards the Tail, are by the descending Trunk of the same. Therefore, if we bleed in the Thigh for a Swelling in the Neck, we cause the Blood in the descending Trunk of the *Aorta* or great Artery, to move faster, and of consequence the Fluid in the ascending Trunk, must move slower: For as much as that a Supply will be wanted in the Vessel, which is running off its Contents; and therefore the left Ventricle of the Heart, will not contain much more Blood, than what is required by the descending *Aorta*, which spreads itself to the lower Limbs, &c. And that this must be the true Doctrine of *Revolusion* is plain from my Text, to wit, *that every Body striking against another, communicates part of its Motion thereunto, and consequently loses so much of its own Motion*. And under this View it may easily be gathered, what is to be done in every particular Circumstance as to Blood-letting. For Instance, if we would prevent the Increase of any *Humour* from the Blood Stagnating or Stopping, in the near Fore-Leg of a Horse, or bring it about that as little Blood as possible should flow to that Leg

Revolusion explained.

Leg in any given Space of Time ; I say, in this Case, Blood should be taken from the opposite Side, because this is truly making what is called Revulsion. Again, if Blood be drawn from the Side affected, and from some Vein which receives the Blood from a Branch of that Trunk of the Artery, which transmits it to the swelled Part ; this, I say, will occasion a greater Derivation or Flux of Blood to that Leg, which appears plain from the foregoing Doctrine. And whosoever rightly understands thus much, will in every Exigence, easily manage this Part of Cure to the greatest Advantage. And as for what relates to the whole Habit of Body or Mass of Blood in all Lentors and Viscidities, as in the Case of the *Farcin*, and other Distempers which proceed from a Slowness of the Blood's Circulation ; I say, if there be a due Strength and Elasticity remaining in the Solids, *Phlebotomy* or Blood-letting will cause the remaining Blood to circulate faster than it did before such Operation, and it will also become thinner and warmer. I speak this with relation to a Lensor or viscous Quality in the Blood, which is a *Clog* to its Circulation. On the contrary, in a Plethora or Over-fullness of the Vessels, proceeding from a Horse's being kept too high, (as it is called,) and using too little Exercise, so that the Powers of the *Viscera* cannot digest and secrete what is received by the Stomach in such Loads : I say, in this Case, and where there happens to be a Diminution of Perspiration, where the Mass of Blood yet retains its natural Fluxility, *Phlebotomy* will render the remaining Blood into such a State, as that it will circulate slower and become cooler. For in the first Case, a Diminution of the Resistance in the Blood-Vessels, will increase the contractile Powers of those Vessels themselves and consequently make them beat faster ; and circulate their Contents with greater Velocity or Swiftmess : But in the latter Case, a Diminution of the Quantity of a spirituous Blood, will lessen the Quantity of Spirit secreted or separated in the Brain ; (which is the Fountain from which all the Animal Spirits proceed ;) and the Consequence of this Diminution will be, that the Heart and Arteries will not contract so often, nor so strongly as before, and therefore the Blood must move slower and become more cool. And on this depends the whole Doctrine of Blood-letting. Those who are yet more curious may consult *Bellini de missione Sanguinis*.

Dr. Sydenham famous
for curing
the Pleurisy.

Notwithstanding what I have said about Revulsion, I think it a kind of splitting Hairs, when we make so great Distinction between taking Blood from the Side affected, or from the opposite ; seeing Circulation is performed in so short a Space as five Minutes in a Man, and about an Hour's Time in a Horse : And our own Countryman, the famous Sydenham, who, I believe, cur'd as many Sick of the *Pleurisy* as any other Physician of his Time ; I say, this Gentleman (with good Reason)

son) depended much upon Bleeding in this Disease, and orders Blood to be drawn from the affected Side, which shews he had some Thoughts of its being preferable; and that it would relieve the Patient sooner, than Bleeding in the contrary Side: The Doctor found his Account in it so far, that it did relieve the Sick, although I must own he did not proceed upon the true Doctrine of Revulsion, laid down as above. Therefore, I say, that the Difference is trifling, as to Bleeding in either Side; for the Benefit accrues from the Blood's Quantity being lessened, more than any thing else. And in my opinion the Learned might employ their Time and Talents much better, than in squabbling about such small Distinctions as they make with relation to *Plebotomy*.

Took Blood from the affected Side:

Before I quit this Subject, I must not omit one very good Observation made by Capt. Burdon in his *Pocket Farrier*, about the Cause of the Staggers, and that is, " *Don't let your Horse stand too long without Exercise, it fills his Belly too full of Meat, and his Veins too full of Blood, and from hence (says he) the Staggers and many other Distempers proceed.* (66)

Captain Burdon's Origin of the Staggers, &c.

It is a very hard matter for a Farrier to judge between a Fever of the Brain occasioning a Frenzy, and the Distemper (by them) term'd the Staggers or Staggers; for if a Horse hangs down his Head and Ears, and reels to and fro, they immediately pronounce him ill of the Staggers; whereas the same Symptoms happen upon a Frenzy, occasioned (as I have before hinted) from a Fever of the Brain. Therefore, the Motion of the Blood must be regarded; for if that be too quick it indicates a Fever. But since it is plain, that a Fever of the Brain and the Staggers require much the same Method of Cure, I shall proceed to an Account of what's proper in such Distempers.

The like Symptoms attend a Frenzy of the Brain and the Staggers.

And first, I say, Bleeding to the Tune of four or five Quarts, if the Horse be pretty strong) is most likely to do Service; for, nothing is more certain than that *Diseases are cured by their Contraries*; and as the Staggers is a Distemper which mostly proceeds from an Over-fullness of the Blood-vessels in the Brain, there is no Dispute but all evacuating Medicines take place after Bleeding.

The Cure: Origin of the Staggers.

Secondly, Purging may be of Service, as it helps forward the Discharge of a Load of Humours from the Guts and Glands thereabouts: But, as to any particular kind of Purging Medicines fondly imagined to carry off Humours from the Brain, it is all a Jest, and meer Child of Ignorance, because there is no such thing as *Elective Purgation*, as I hope may be understood from what I have said in my Notes upon the *Gentleman's Pocket Farrier*. Therefore, the Benefit accrues from this, to wit, that whatsoever part of the Blood or Juices of the Body you take off by Bleeding, Rowelling, or such like Operations, you thereby ease the Pressure against the Sides, &c. of the containing Vessels;

Purging proper, and why.

No Elective Purgation.

From whence the Benefit of Bleeding, and &c. accrues;

and of consequence there is a more free Circulation, by reason the Quantity of Fluid in the Body is lessen'd, which (as I have said before) causes the Blood to become thinner and move faster.

I shall not enter into a Detail of the Parts which we should draw Blood from in Distempers of the Brain, seeing, in my opinion, most Places are alike, and the Cure seems chiefly to depend on a proper Quantity of Blood's being taken away. But no Person can judge of this except he saw the Horse; only thus far may be said in General, *that where one Creature dies of a distempered Brain from the Loss of too much Blood; there are twenty lose their Lives for want of taking away a sufficient Quantity.*

Mr. Gibson's
Ball for the
Staggers.

I must here give Mr. Gibson his just praise, who in his Book of Farriery has taken care to order what is very proper in the *Vertigo* or *Staggers*, viz. his *Assa Fætida* Balls with *Castor*: But, as these would (if continued long in Use) soon exceed the price of a good Horse, I believe few will make use of them: Altho' I must needs own if I valued my Horse, I would give him Balls made with one Ounce of *Native Cinnabar* to half a pound of the *Cordial Ball* prescribed in the *Pocket-Farrier*, and let him have about the Bigness of a Wall-nut of such Ball every Morning before his moderate Exercise.

The Au-
thor's Ball
for the Stag-
gers.

It is on the *Cinnabar* (in whose Composition there is a deal of Quick-Silver) that the Stress of the Cure is to be laid, and this, for reasons too long for me to explain in this place.

A Glyster
for the Stag-
gers.

Lastly, I advise a strong Decoction of *Senna* with some common Salt to be injected by way of *Glyster*, with a very long *Glyster-Pipe*, &c. every Evening and Morning, and also the Herb called *Asara-Bacca* to be powdered, and with a long small Tube or Pipe blown up the Horse's Nostrils to the Quantity of half an Egg Shell full, which is about a Drachm in Weight. This should be done every Evening, to make the Nose run a thin Lymph or Watery Humour, which will ease the Head abundantly.

A Powder
to be blown
up the Nos-
trils for the
Staggers.

There are in *Authors*, great numbers of Receipts for the Cure of the Staggers, as well as most other *Distempers*: But, I must ingenuously confess that my Faith is not pin'd upon the number of Ingredients in any Composition, but rather upon such Things as are particularly adapted to the Cure of the Disease, and for the Administration of which there is a *Why* and a *Wherefore*; for really there is no End of the Practice which is founded upon *Nostrums*, seeing every one is bigotted to his own Receipt. Therefore it is well with us that the Art of Medicine is at this Time (by the Helps which accrue from *Mathematicks*, *Mechanicks*, *Chymistry*, and *Natural Philosophy*) brought to such a Certainty, that all Family Receipts are thrown out of Doors, and sufficiently exploded, as superstitiously and ridiculously contrived.

No end of
the Practice
founded up-
on *Nostrums*.

Family Re-
ceipts explo-
ded.

What

What I have said with relation to Bleeding, Glystering, and the *Sternutatory* or Powder to blow up the Nose, is, I think, sufficient for the Cure of the Staggers, by reason, it is granted, that such Distemper proceeds from Over-fullness; therefore Evacuants are indicated, and these should be mild and safe, not such as enter the Blood and fuse or heat it; but rather Glysters, &c. which operate no farther than the *Primæ Viæ* or first Passages, as the Stomach, Intestines, and their Appendices.

Mr. Gibson, in his Book of *Farriery*, tells us, that it is a common thing to put *Garlick, Rice, Aqua Vitæ, Cloves, Ginger, Bay-salt*, and the like, into a Horse's Ears, and stitch them up, for the Cure of the Staggers, and that he has seen some run mad by such Applications, so that the People had much ado to keep them from knocking out their Brains against the Walls. I must confess, I do not remember to have seen any such Tricks played for the Cure of the Staggers, tho' it is common amongst Farriers to put Quick-silver, and often other Things, into the Ears, and sew them up for some Time to cure the Farcin. And I knew one of the better Sort of Farriers, who had been long in *Flanders* among our Troops, where he chiefly gained his Experience, (as he call'd it,) so foolishly fond of sewing up Mercury or Quick-silver in the Ears of Horses for the Cure of the Farcin, that he seldom made use of any other Method: And to my Knowledge he effected Cures by it when the Case seemed desperate. And here I must relate one of the common Notions of this honest Fellow, whom I still had a good Liking to, because I now and then could drive some Reason into him, which he has publicly owned he found his Account in. This Farrier, you must know, was so biggoted to the Ears, as being the most proper place to apply things to for the Cure of the Farcin, that he told me he had often seen the *German Farriers* cure that Distemper by whispering some *Abracadabra's* into the Horse's Ears, and giving him a Kick with their Foot, and turning him (as I remember) three times round afterwards: And this out of the way Opinion my *Old Friend* retained even to his dying Day; and I could never make him believe an *Englishman* half so good as a *German* for curing the Farcin; notwithstanding I have taken Pains to convince him that there is no greater Charm or Conjuration in the Number *Three* than there is in Number *four*, or any other Number in *Arithmetick*, any farther than as it works upon the Imagination, which I must own is in many Cases surprizing, where the Subject is a Human Creature. But in Brutes, I cannot see that the Imagination can operate, especially in this particular. But that this Faculty or Function is predominant in Brutes, as well as Human Creatures, is most certain, tho' not in so eminent a Degree, therefore no great Cures can be effected by it.

Evacuants proper in the Staggers. Glyster how far it operates.

The Folly of putting Garlick, &c. into a Horse's Ears.

Mercury sew'd up in the Ears suppos'd a Cure for the Farcin.

The German manner of curing the Farcin.

The absurd Notion of the Number *Three* conducing to effect a Cure.

Rowelling
its Use in
curing Dis-
tempers of
the Brain.

The reason
why Rowel-
ling is useful.

As to other Distempers of the Brain, such as *Lethargy* or *Sleeping Evil*, *Falling Evil* or *Convulsions*, *Frenzy* and *Madness* in Horses, they are mostly treated as *Apoplectick Disorders*, to wit, by Bleeding and Evacuating Medicines, such as Purges, &c. And I believe *Rowels* may in these Cases prove of Service, provided there be made a sufficient Number of them, and those continued according to the Horse's Age, Strength, &c. But, as to the Parts of the Body, where such running Sores should be made, whether behind the Ears, in the Breast, or under the Horse's Belly, I think it is much the same thing; for, the Cure consists in a regular and slow Emptying of the *Vessels*, or, in other Words, in draining off the Cause of the Distemper, by other Out-lets, more than those provided by Nature. For in reality, making Rowels, Issues, &c. are no more than adding a Number of Anus's or Fundiments; so that she may meet with them in several Parts of the Body, and not be put to the trouble of going the more tedious and common Round of Circulation, in order for a discharge by Excrement or Dung.

C H A P. XI.

Of Diseases of the Eye, with an Account of its Parts.

IN this Chapter I hope to make the Reader understand thoroughly, the Nature of a Horse's Eye, so that he will be able not only to choose one with good Eyes, but likewise be a Judge when these Horses which have distemper'd Eyes are curable. But first, I think it absolutely necessary, to give some Account of the Anatomy of this so admirably contrived Organ.

The Eyes by
the Latins
term'd Ocu-
li, and why.

The Eyes are term'd in Latin *Oculi*, from the Word *Ocludo* to shut, or from the Word *Occulo* to hide; because they are hid by the shutting of the Eye-Lids, they are the Organs or Instruments of Sight, consisting of many Parts, to wit, of Humours, Membranes, &c.

Why the
Eye is of a
Globular
Figure.

The Eye alone, when its Muscles, the Optick Nerve, and Blood Vessels are removed, is of a round or Globular Figure, both that it may move the better, and also that it may the better receive the visible Rays.

The Eye-
Lids, their
Use.
The Eye
described.
Its Coats.
1st. Adnata
Tunica.

The Eye-Lids serve as Curtains to the Eye, by which Dust, Flies, or any Thing else which might annoy them, is kept out; nor do I think a farther Description of them is necessary; so I shall proceed to the Eye itself, and describe the Parts of which it consists. And first, of its Tunics or Coats.

The first of these is called *Adnata*, from *ad* and *nascor* to grow to; it is also called *Albuginea* and *Conjunctiva*. This makes the White of the Eye, and by it the Eye is kept firmly within its Socket; it is of exquisite Sense, and hath many small Veins

Veins and Arteries, which are very discernible in an *Opthal-*
mia or Inflammation of the Eye.

The second, is called *Sclerotica*, from the Greek *σκληρύνω*, ^{2d. Scleroti-}
induro, to harden. This Coat appears plain, after the removal ^{ca.}
of the former: It arises from the outermost Coat of the Optick
Nerve, or in other Words, from the *Dura Mater*; it is opaque
or dark behind, but transparent before, like a Piece of smooth
Horn; from whence the third Coat has its Name, to wit, the
Cornea, or horny Coat, which is all that Part of the Eye, sur-
rounded by the White of the Eye.

The third, is term'd the *Cornea* or horny Coat: It has a ^{3d. Cornea.}
greater Convexity, than the rest of the Globe of the Eye, and
is composed of several parallel *Laminae*, which are nourished by
many Blood-Vessels, so exceeding fine, as not even to hinder
the smallest Rays of Light, from entering the Eye. And it
has so exquisite a Sense, that upon the least Touch, the Tears ^{The Use of}
might be squeezed out of the *Lacrymal Gland*, to wash off any ^{Tears.}
Filth, which by sticking to the *Cornea*, might render it opaque
and dark.

The fourth, is called *Choroides*; it lies under the *Sclerotica*, ^{4th. Cho-}
and is much thinner than that. *Anatomists* think this to arise ^{roides.}
from the *Pia Mater*, or thin cob-web-covering of the Brain,
which is expanded all along the Inside of the Optick Nerve, and
terminates in the *Choroides*. On the Inside of this Membrane,
is a Kind of blackish Substance prepared by Nature, and spread
over the back Part of the Eye. This Coat has a great Number
of Blood-Vessels, which come from the second, called *Sclero-*
tica. The *Choroides* itself is of a whitish Colour, only the ^{Its Colour.}
Glands thereabouts, separate such blackish Matter as is before
spoken of. Mr. *Snape* says, that such Matter as is spread over ^{Mr. Snape's}
the inside of this Membrane, is for the End that the Ideas re- ^{Account of}
ceived into the Eye, might appear more illustrious; but this ^{the blackish}
is a dark Saying, like many more Expressions made use of by ^{Matter}
those, who have treated upon the Subject of Farriery. ^{spread upon}
^{the Choroi-}

There is no Doubt, but such blackish Glaze, or viscous ^{des.}
Liquor, is spread over the Inside of this Membrane, to the End ^{The Au-}
that the Rays of Light, which pass from Objects into the Eye, ^{thor's Opi-}
may not be reflected back again, but (as it were) become thorough- ^{nion con-}
ly imbibed, and have a due Weight and Force upon the sixth ^{cerning it.}
Coat, called the *Retina*.

The *Choroides* is open, or has a round Hole before (for the ^{The Pupilla,}
Passage of the Rays of Light,) called *Pupilla*; and by the com- ^{what, ab-}
mon People, (though very absurdly) the Sight of the Eye. ^{surdly called}
^{the Sight of}

The *Uvea* is the fifth Coat, and makes the Circumference of
the Hole I have been describing, which lies upon the inside next ^{5th. the U-}
the *Chrystalline Humour*. This Coat is made of both circular ^{vea.}
and straight Fibres or small Threads, which contract or dilate,
according to the different Impressions of Light and Objects:

For if the Light be strong and glaring, these Fibres contract, and make the Hole called the Pupil (or Sight of the Eye) appear smaller. In like Manner, those Colours which make a strong Impression upon the *Retina*, oblige these Fibres to contract and draw the Hole into a lesser Compass; for the Contraction is involuntary, as well as the Dilatation or stretching out of the Pupil. And by these different Actions of the circular and straight Fibres of the *Uvea*, one may very easily judge of the rest of the Parts of the Eye; I mean, whether they be sound and perfect. For, the more the straight Fibres contract, when the Animal is in Darknes, or has a dark or opaque Body held before the Eye, by so much the more may we judge the rest of the Parts of this Organ, to be in a Sound and Healthful State. The Contraction of the circular Fibres, upon the Admission of the Rays of Light into the Eye, and the quicker this Contraction is performed, the sounder and more healthful are the rest of the Coats and Humours. But a Person who is not well versed in *Opticks*, must look well and near, to observe rightly the Contraction and Dilatation I am speaking of.

No Contraction or Dilatation of the Pupil in a *Gutta Serena*, and for what Reason.

Some Account of Dr. T---r, Occasion to the Queen.

In a *Gutta Serena*, the Pupil neither Dilates nor Contracts; because the Rays of Light which pass this Hole, and fall upon the *Retina*, do not in the least affect the Optick Nerve, which should convey the Image of the Object to the Brain. Therefore, in my Opinion, (notwithstanding what some late Pretenders may suggest to the World, about curing this Disorder of Sight) a *Gutta Serena* is incurable. And I dare venture to wager a Hundred Pounds with any Person, who pretends to perform this Operation with Success, that he fails in the Attempt: But then I will not take his Judgment, but my own, whether the Distemper be a *Gutta Serena*, or no: For I know very well, this common Trick of Dr. T---r, viz. that he frequently calls a *Cataract* or *Glaucoma*, by the Name of a *Gutta Serena*, when there are no better Judges than himself by; and therefore he is said (by the ignorant By-standers) to cure a *Gutta Serena*, when he has only done what many a one before him has, (without a quarter of the Noise he makes) viz. *couches a Cataract*. But this the Doctor thinks is too bald an Expression; and notwithstanding it is true, yet it seems Truth will not always take with the World if in a plain Dress. Therefore this *Itinerant*, cunningly stiles such Operation, (different from our Fore-fathers) by his common Term of *Removing the Disorders of Sight*, or *Depressing a Glaucoma*; for the Word *Cataract* would be too intelligible to the Country People, and would hinder the Doctor's Business.

I cannot part with this Fellow, who travels up and down the Kingdom, and pretends that he can perform such Wonders in removing the Disorders of Sight, when in Fact (for I have discoursed him over) he is ignorant of the very Fundamentals, viz. the

the Anatomy of the Eye: And, as to Vision, he knows no more of it, nor of the Theory of Light and Colours, than the Creatures I am treating of in this Book. Indeed I must own, he can couch a Cataract and brush the White of the Eye, (by the Latins called *Tunica Adnata*) with a Brush made of a few Rye or Barley-angs, (tied together in the middle, with a little Silk) when it is inflamed, and by this Means cut asunder the small Capillary Blood-Vessels, which are full and turgid in an *Ophthalmia* or Inflammation of the Eye, upon which the Eye looks much better and clearer: But then, all this While, such Operation is no new Thing; for, it has been a Practice amongst the *French* Surgeons, especially those who mounted Benches, by their own Country-Men stiled *Medicin Hableur*, which rendered into our Language, signifies a *Romancing Doctor*: I say, this, as well as a great many more whimsical and amusing Performances are shewn to the Populace, by the nimble-finger'd Gentleman I am speaking of: And of this I have been an Eye-Witness twenty Years ago. But it is a delicious Brush to the Doctor, whatever it proves to his Patients; for to my certain Knowledge, he last Summer brushed an old close-fisted Clergyman out of thirty Guineas, and at last left him where the D—I left the Frier: But, so far I must tell the Doctor, he is safe from any Complaints from this Gentleman, because he dare not squeak, for fear of being laughed at by his Neighbours, for being so lavish of his Money, to a Person who travelled with no other Credentials, than such as (by the Diction and Style) appear to be of his own Composure.

I am not at all surprized at some Letters of Recommendation this Person procures and carries from one Town to another, which Letters are mostly from Physicians to their Brethren. I myself had two such from very ingenious Men in other Respects; but then I must beg their Pardon, if I differ from them in my opinion of this empirical *Pretender*, who, in my Judgment, has got a Knack at nothing but getting Money, which may do well enough for a while: But so far I must venture to tell Fortunes (notwithstanding the late Act of Parliament against the common Retailers of *Astral Influence*) that this Man, along with one more of the like Stamp, and a *Female Bone-Setter*; I say these three are of the *reptile* Kind, and therefore cannot endure long; but as they sprang up hastily and are destitute of a good Foundation, it is certain they will in a few Moons totally disappear, and vanish like a Dream, neither will they be any more heard of.

I beg the Reader's Pardon for so long a Digression, and I hope he will the more readily grant it, when I tell him that I did it to caution my Country-men, as they value their lives and Eye-Sight, never to employ an Oculist who travels about the Country, sounding his own Trumpet; for I never heard of or

knew a cleverer Fellow of the Sort. And there are Instances enough, within the Memory of Man, to confirm what I say; and I fancy the Publick will be thoroughly convinced, what sort of Men are fittest to be chosen as Operators, to remove the Disorders of Sight, when they read my Translation of the Labours of the very Learned and truly Worthy Dr. *Antoine Martrejan*, sworn Surgeon of *Paris*, with my Annotations upon him; which I have ready for the Press, and design to publish the first Opportunity; after I have finished this Book. But to return,

The Iris.

The *Iris* is the Outside of the *Uvea*, and is of different Colours. From the Inside of the *Uvea*, which joins the *Choroïdes*, rises the *Ligamentum Ciliare*; it is made of short Fibres, which run upon the Fore-part of the Glassy Humour, (which I shall describe hereafter,) to the Edges of the *ChrySTALLINE*: These Lines are drawn from the Circumference to the Center, and by the Contraction of these Fibres, the fore-part of the Eye is made more prominent, or higher in the middle, and the *Retina* or Net-like Membrane pressed back farther from the *ChrySTALLINE Humour*, as the *Axis* of Vision is lengthened, when Objects are placed too near the Eye.

The Use of
the Ciliary
Ligament.

Sixth. The
Retina.

The *Retina* is the sixth Coat, so called from its resembling a Net, which covereth the Bottom of the Cavity of the Eye. It is a fine Expansion of the *Medullary* or *Marrowy Fibres* of the *Optick Nerve* upon the Surface of the Glassy Humour, as far as the *Ligamentum Ciliare*; and it is upon this Coat that the Impression of Objects is made, and from thence by the *Optick Nerve* convey'd to the common Sensory.

The Hu-
mours of the
Eye descri-
bed, and first
the Aqueous
or Watery
Humour.
Aqueous
Humour of
Spirituos
Nature.
Observation
on a Cock's
Eye.

The Humours of the Eye are three: The First is called the *Aqueous* or Watery Humour, which is of a thin Consistence and of a Spirituous Nature, for it will not congeal in the greatest Frost. And this evinces the Necessity of a continual Supply of this Humour, which it is manifest it hath; because if the *Cornea* or Horny Coat be pricked, and this Humour squeezed out, it will be restored again in ten or twelve Hours time. And I have often observed this in fighting Cocks, which after they received a Prick with the other's Spur thro' the Horny Coat, the Eye would fall flat and hollow and be lost for the Battle, and altho' one would be hardly perswaded that such Cock would ever see of that Eye; yet it has the Morning following, been full and plump again; and in two or three Days after very well and sound. But then I must observe that when the Spur happens to penetrate so deep as to wound the *ChrySTALLINE Humour*, then, that Humour becomes heated and so altered as to hinder the Rays of Light from passing thro', sometimes appearing of a Pearl-Colour, at other times of the Colour of Rusty Iron or Greenish; and in these Cases the Cock has a glass Eye; which is in effect the same as to be blind of that Eye: For altho' such

Creatures,

Creatures, as Horses, &c. which have Glass-Eyes may distinguish Light from Darkness, yet they cannot distinguish Objects so as to be of any real Service to them; and what is called by the common People a Glass-Eye, is the *CrySTALLINE Humour* altered from a Transparency to that Degree, that it will not suffer the Light to pass thro' it, and is in other Words a *Glaucoma* or *Cataract*; which Disorder I have heard the present Learned Oculist to her Majesty affirm, he could either give to his Patients or cure them of it, as he thought fit; and that before he learnt this Art, he had blinded 500; which Relation I am the more induced to Credit, since I have perused his late Book upon the Disorders of Sight, which I pronounce the most consummate and finished Piece of Nonsense and Jargon that ever I beheld; And really, I thought I should have split my Sides when I read it. But when I told the Doctor that he had puzzled me, he said he was glad on it, for he did not write in order to be understood, so that he had gained his Point. But for fear of nauseating the Reader too much with dwelling upon this Man of Ability. I shall proceed.

The second Humour is the *CrySTALLINE*. It lyes immediate-^{The 2d.} ly next to the *Aqueous*, behind the *Uvea*, opposite to the Pupil or sight of the Eye, nearer to the Fore-part, than the Back-part of the Globe. It is the least of the Humours, but much more solid and firm than any of them. It's Figure, which is Convex or high in the Middle and thinner at the Sides, resembles two unequal Segments of Spheres, of which the most Convex is on its back-side, which makes a small Cavity or hollow Place in the Glassy or Vitreous Humour in which it lyes. It is cover'd with a fine thin Coat called *Ara-nea* from it's Resemblance to a Spider's Web; and this very Coat or Covering is adherent to the Glassy Humour, all around the Edge of the *CrySTALLINE*.^{CrySTALLINE.}

Dr. T—r, Oculist to her Majesty, has made a great deal of Doe-about-nothing, in a Piece he has had the Assurance to publish to the World.

In this Learned Performance, the Doctor runs much upon the *Capsula* of the *CrySTALLINE Humour*, by which he means a kind of Bag, which covers the said Humour; and would have us believe, that he was the first Discoverer of such *Capsula* or little Bag, which he imagines he cuts in his Operation for a *Cataract*, and with his Needle turns the whole Body of the *CrySTALLINE* through such Aperture or opening. But sure, the Doctor is so far from having read the Authors he quotes upon the Subject, that he has neglected the perusal even of some of our own Nation, particularly Dr. *Kennedy*. I say, if T—r the Oculist had perused this Author, or (if he could not understand him) have got some one to explain it to him, he would find that his *Capsula* of the *CrySTALLINE*, is nothing more than the

the *Tunica Aranea*, or Membrane that adheres to, or is continued from, the *Vitreous Tunic* and *Ligamentum Ciliare*: And then, as to his turning the whole Body of the *Cryſtalline* out of its Place, I ſhall ſhew the Abſurdity of the Notion, after I have deſcribed the Parts of the Eye, and come to treat upon *Vifion*. But to return,

The Substance of the *Cryſtalline Humour* is commonly taken for a congeal'd or frozen ſort of Body; as the *Vitreous* has likewise been; But this Opinion, no doubt, has proceeded from a very flight Examination, or rather no Examination at all; ſince few are ſo ignorant as not to have ſeen a Fiſh's Eye boiled, or even any other Creature's, the *Cryſtalline* of which becomes White, and turns off in many different *Laminæ* or Coats, like unto the Coats of an Onion. And becauſe the Q—n's Oculiſt would have us believe, that he firſt diſcovered the Capſula of the *Cryſtalline*, I beg the Reader's Leave to tranſcribe the Words of Dr. *Kennedy*, in his Book publiſhed in the Year 1713, which I believe will be found to be ſome Years before T—r was a Praſtiſer: The Words are theſe, *viz.* ſpeaking of the *Cryſtalline Humour*, he ſays “ That it “ lies in a perfect Sort of *Sacculus*, that is, its *Tunica Aranea*, “ being continued from the *Vitreous Tunic* and *Ligamentum Ciliare*, comes cloſely round it, ſo that it lies very fixed “ and faſt; but if you cut it's *Tunic* or Coat on the Top or “ Side, it immediately ſprings out, ſo that it ſeems not to be “ any ways adherent to its Membranes.”

Thus far Dr. *Kennedy*, whoſe *Sacculus* for the *Cryſtalline*, I think every whit as Pertinent, as T—r's *Capſula*: Although I muſt own, Dr. *Kennedy* is miſtaken in one Particular, *viz.* where he ſays, that if you cut the *Tunica Aranea*, (or which is all one, T—r's *Capſula*), the *Cryſtalline* will immediately ſpring out; I ſay, that Mr. *Kennedy* is moſt certainly wrong in this, becauſe we never couch a *Cataract*, but we cut this *Capſula* or thin Membrane, and turn off very often one or more of the *Laminæ* of the *Cryſtalline Humour*; nay I have great Reaſon to believe that ſome *Cataracts* are no more than the *Capſula* of the *Cryſtalline* grown dark or opaque; for upon the leaſt touch with my Needle (I mean a flat two-edged Needle) the Fibres of the *Capſula* being a little divided, immediately contracted themſelves, and left the whole Body of the *Cryſtalline* clear and transparent; and I was ſatisfied it could not be the *Cryſtalline* that I touched with my Needle, becauſe I did it ſo ſlightly that I ſcarcely cut the *Capſula*.

I ſay the *Laminæ* of the *Cryſtalline Humour*, in the Diſeaſe called a *Cataract*, are ſo altered as not to ſuffer the Rays of Light to paſs through them; and when theſe *Laminæ*, I mean the opaque Strata or Rays of the *Cryſtalline*, are thus ſcraped off with the Needle, it is then the remaining Part of
that

that Humour suffers the Rays of Light to pass through, although indeed, they often fall in a confused Manner upon the *Retina*; and therefore it is absolutely necessary to supply the Defect of the Crystalline, which from being Convex, is, by the Needle in couching, made almost of a plain Surface; I say, this Defect is best supplied by a Lens or Convex Glass. And for farther Proof that this is the real Cause of a Cataract, and that the Crystalline is in Fact the true Lens of the Eye, it may be observed, that those Persons who have had their Eyes couched, are obliged to use Glasses of a greater Convexity, than others who are above a hundred Years of Age: And this, because the Convexity of one Side of the Crystalline is scraped off in the Operation of couching. But it is Folly and Madness to imagine, with τ — r the Oculist, that the Crystalline Humour is quite turned out of the Cavity it makes in the Vitreous, in such Operation; and that the Vitreous Humour becomes Convex in its Place. I say, this is (for Reasons too plain to be insisted on) talking more like a Quacking empirical Fellow, than one versed in *Opticks*. I shall now proceed to a Description of the third Humour.

The third is called the Vitreous or Glassy Humour. It takes The 3d. up the greatest Part of the Eye, filling all the hind Part of the Humour. Globe. It is Spherical behind and in its middle; before, it is concave or hollow, and in the Cavity the Crystalline Humour lies.

The Vitreous is a very transparent Substance, not so hard as the Crystalline, nor so fluid as the Aqueous or Watery Humour; and it seems to be nothing else but a Number of delicate little Vesicles or Bladders full of Water; for in touching, it is always moist and waterish, and when cut, the Mixture flows out more abundantly, or by rubbing it betwixt the Palms of one's Hands, the Water comes out, and to such a Degree, that it will appear nothing but a Membrane or thin Skin; and by observing with a Microscope or Glass commonly called a Magnifying-Glass, when it is cut, you will observe many little Airy Bubbles to arise from it, but being dried, it evaporates or flies away, and this delicate membranous Body seems almost withered to nothing. The Vitreous Humour described.

The Use of the Vitreous or Glassy Humour, seems chiefly designed to keep the Crystalline at a proper Distance from the *Retina*, as I shall farther explain in speaking of Vision: For I hope the Reader will Pardon my Prolixity, with relation to a Discourse of that so admirably contrived Organ the Eye, seeing so many People are cheated with Horses that have bad ones, nay sometimes with such as are stone Blind. Therefore, I say, if the Reader will only study over this Chapter a little, he may most certainly judge of the Soundness of a Horse's Eyes; and thereby shun the Loss which accrues upon buying The Use of the Vitreous Humour.

buying a Blind Horse, as well as the Censure of his Neighbours, for his Ignorance in that Particular. Now to return.

The Vitreous or Glassy Humour has a very fine and thin Membrane or Coat with which it is covered. This Membrane is adherent or joining to the *Ligamentum Ciliare*, and no doubt has it's Blood-vessels from thence, (as well as all the other Membranes of the Body, which must be nourished by Blood-Vessels,) altho' so fine and small that they are not to be seen even with a *Microscope*. Yet this needs not seem strange when we consider that those of the *Cornea*, which tho' much larger, are not to be seen, till they become turgid or swell in an *Ophthalmia* or Inflammation of the Eye; or even those of the *Tunica adnata* or white of the Eye till inflamed, as I have said. Now whether there is any Communication between the Vitreous Humour and the *CrySTALLINE* is what *Anatomists* cannot determine; But this is plain, to wit, that its Membrane or Coat is not only continued or adherent to the *Ligamentum Ciliare*, but likewise to the *Tunica Aranea* or Membrane which immediately covers the *CrySTALLINE Humour*, which *Tunica Aranea* is the *Capsula* of the *CrySTALLINE* lately discovered by Dr. T——r, as I have just before hinted.

The Optick
Nerves.
The Origin
and Termination
of
their Coats.

Center of
the Retina
insensible.

The Reason
assigned.

The Advantage
of the
Optick
Nerves being
inserted
on the inside
of the Optick
Axes.
How Vision
is performed.

The *Optick Nerves* pierce the Globe of the Eye a little on the Inside of the *Optick Axes*. Their external Coat, which is a Production of the *Dura Mater*, is continued to the *Sclerotis*, or that Part of the Eye, next under the White; as their Internal, from the *Pia Mater* is to the *Choroïdes*, which is the Coat next under the *Sclerotica*, and their Medullary Fibres passing thro' all, are expanded into the *Retina*, upon which the Images of Objects are painted. The Center of this Expansion is insensible, and all the Rays which fall upon it are lost, and consequently that Point of the Object from which these Rays come is invisible to the Eye: The Reason of which proceeds probably from the Blood-vessels, which enter with the *Optick Nerves*, and cover this Part of the *Retina*. But, whatever it's Cause is, there is a manifest Advantage in the *Optick Nerves* being inserted on the Inside of the *Optick Axes*; for if they had pierced the Eye, then the middle Point of every Object had been invisible. And where all Things conduce to make us see best, there we had not seen at all. We must likewise have lost some Part of an Object, if the *Optick Nerves* had been placed on the Outside of the *Optick Axes*, because an Object may be so placed as that all the Rays which come from one Point may fall upon the Outside of both Eyes, but it is impossible they should fall upon the Inside of both Eyes; and therefore that Point which is lost in one Eye is visible by the other. All the Rays of Light which come from one Point of an Object, are by the *Cornea* and Humours of the Eye united in a Point of the *Retina*, which is in a straight Line drawn from the

the same Point of the Object thro' the Center of the Eye, and consequently all the Rays which come from all the Points of an Object are united on the *Retina*; in the same Order and Proportion as the Points of the Object are from whence those Rays come. Therefore the Interposition which these Rays make upon the *Retina* must be the Image of the Object: And thus Vision in general is performed. But to know what the several and distinct Parts of the Globe of the Eye contribute hereunto, it is needful to observe, that the *Cornea* is more Convex than any other Part of the Eye, by which Means all the Rays are gathered, so that they may pass thro' the Pupil or Sight of the Eye, and none of them be lost upon the *Uvea*.

The *Aqueous Humour* being thinnest and most liquid easily changes its Figure, when either the *Ligamentum Ciliare* contracts or both the oblique Muscles squeeze the Middle of the Bulb of the Eye to render it oblong, when Objects are too near us. The straight Fibres of the *Uvea* dilate the *Pupilla* or Sight of the Eye, as it is commonly called, when there are but few Rays of Light; and the Circular Fibres contract it when there are too many, as may most easily be observed in a Cat's Eye when she sits in the *Sunshine*, how narrow and small the *Pupil* or Sight of her Eye will appear to what it is when she is in the Shade.

The Reason of the Contraction and Dilatation of the Pupil. Observation on that of a Cat's Eye.

When the Pupil or Sight of the Eye is contracted we see most distinctly; when it is dilated we see most clearly.

The Glassy Humour keeps the *Crystalline* at such a Distance from the *Retina*, as is necessary for uniting the Rays which come from one Point of the Object, exactly in one Point of the *Retina*.

The *Choroides* is tintured black, that the Rays of Light which pass thro' the *Retina*, may not be reflected back again, and thereby confuse the Image of the Object; for black imbibes or (as it were) sucks up the Rays, and therefore it is the hottest Colour a Man can wear in Summer.

The *Choroides* black, and why.

Thus have I given a succinct or short Description of this admirably contrived Organ; and what I shall treat of next is the Theory of Vision, wherein I shall shew how, and after what Manner the Images of Objects are represented to the Eye by Means of the aforesaid Organs of Sight.

Black the hottest Colour for Summer-wear.

C H A P. XII.

Theory of Vision considered, with some of the Diseases of the Eye.

IT is not my Design at present to write a distinct Treatise upon Opticks, but only to shew the Reader so much as is necessary how Sight is performed, and by that Means he will be

be able to judge better, perhaps, than he could do before, of the Soundness of a Horse's Eyes.

Light a subtil Fluid.

Light, or what I mean by Rays of Light, are no doubt a subtil Fluid, that moves quick and is continually emitted from the Sun or Luminous Body. Its Motion may be observed by the Reflection on Solid Bodies, and the Refraction it has in passing through dense Mediums, such as Glass, &c.

Motion of Light quicker than that of Sounds. In what Space of Time Light finishes its Course, from the Sun to this Earth.

I might here enter into a Philosophical Account of Light, and show how much quicker its Motion is than that of Sounds, which is the second in quickness to Light; and that this Body, for such it is, though of extremely small Particles, according to the Demonstration of Mr. Romer, from the *Eclipses of Jupiter's Satellites*, finishes its Progress from the Sun to this Earth, in about ten Minutes of Time; and moves a Million of Times quicker than a Cannon-bullet, shot from the Mouth of a Cannon. For as the first comes to us from the Sun in ten Minutes, the latter would be 25 Years in finishing the same Course, though it should fly with the same Celerity as at first; and yet the Sound of the same Cannon, would be here in a little more than half that Space of Time. And the Reason why a Bird does not fly away, and escape being killed by the Fowler, when Light and Sound are so much quicker than the Ball or Hail-shot, is, because the Distance between the Fowler and the Bird is so small, that the Difference is scarcely distinguishable, except by a Person who is a good Judge of these Things; for the Motion of all the Three is exceedingly quick.

What Bodies by Agitation emit Light.

All Bodies abounding with earthy Particles and especially if they are sulphureous, and their Parts sufficiently agitated, do emit Light, whatsoever way such Agitation is brought about. Thus *Sea-Water* shines in a Storm; Quick-silver when shaken in Vacuo; Cats or Horses when rubbed in the Dark; and Wood, Fish, or Flesh, when putrefied.

Light, what it is.

Light then is that *Materia Subtilis*, sent forth from the Sun or Luminous Body in Lines or Rays, commonly called Sunbeams; and these coming with such incredible Swiftnefs, and meeting the Eye properly and wonderfully disposed, with *Convex* and *Diaphanous* Mediums the better to receive such Rays, cannot but strike very sensibly upon the fine Medullary Fibres of the *Retina*; but whether it be communicated to the Soul by Undulation or Vibration, is what I shall not pretend to determine.

Camera Obscura described.

The Eye may be considered as a *Camera Obscura*, or dark Chamber, to make which, shut the Doors and Window-shutters of a Room very tight and close, so as no Light be admitted to come in but by a small Hole in one of the Shutters: Then place a Sheet of white Paper, which may be supposed to represent the Retina in the Eye: I say place this at a convenient

venient

venient Distance from the Hole, and the Rays reflected from Objects without, or in the Street, will cross one another in the Hole, and paint the Image inverted or topsy-turvy on the Paper though but faintly.

Thus it would do upon the Retina, although there were no Humours in the Eye, neither *CrySTALLINE Vitreous*, nor *Aqueous*, no nor even the *Cornea* or horny Coat, provided there was only a small Hole, such as the Pupil, for the Rays to pass through, as in the *Camera Obscura*; so that it is possible for a Creature to see without the help of the *CrySTALLINE Humour*; and perhaps this may have made Dr. T——r imagine, that he turns the whole Body of the *CrySTALLINE Humour* out of its Place, when he cures a Cataract. But he must be only a Smatterer in Opticks, that knows not thus far, to wit, that if the *CrySTALLINE Humour* were totally removed out of its Place, the Images of Objects would be so faintly painted upon the Retina, that a Person might be near as well blind. So that all the Parts of the Eye, (as I shall shew hereafter,) contribute to the greater Perfection of Sight.

For Example, a *Lens* or Spectacle-Glass, we may suppose to be the *CrySTALLINE Humour* behind the Pupil or Sight of the Eye; I say such Glass, being placed betwixt the Hole and the Paper, will make the Rays converge or come to a proper *Focus* or Point, though they were before spread in a large and confused Manner; that is, the oblique Rays of each Pencil of Rays, that flows from every Point of the Object, will be refracted by the Density of the Glass Medium to their proper Perpendicular, and there meeting much nearer to one another in the *Focus*, than at their Place of Incidence, must consequently imprint the Image much more strongly, and perfectly delineated.

If the *Lens* or *CrySTALLINE Humour* be too far from the Paper or *Retina*, the Rays will intersect or cross one another before they arrive there, and afterwards become divergent or dispersed upon the Paper; so that by this Means they are again spread, and make a confused or faint Image or Impression of the Object. If it be held too near, I mean, if the *Lens* or Convex Glass be held too near the Paper, the Rays are not as yet met in their *Focus*, and therefore cannot be so perfect. Thus the Paper or *Retina* must be at a proper Distance.

The Reason commonly assigned for the Disorder of Sight called *Myopia*, Mouse-ey'd or Purblind is this, to wit, from too great a Convexity or Protuberancy of the *Cornea* and *Globe* of the Eye, which is very remarkable in Creatures near-sighted. There is no Cure for this Disorder in Horses, but Men are help'd by the Use of Concave Spectacles or Meniscous Glasses, or such Glasses as are Convex on one Side and Concave on the other, or those called *Concavo-convex* Glasses, which make the

Vision per-
formed
without
the *Crystal-
line* or other
Humours.

The Rays of
Light con-
verged by
the *Crystal-
line* humour.

Near-sight-
edness ac-
counted for.

the Rays diverge or go farther asunder, that otherwise would be too near or Convergent, by the too great Convexity of the *Cornea*, &c.

Presbytia,
what.
In old
Horse's, the
Cornea not
so Convex
as in young
ones.

Cause of
Dimness of
Sight.
Why old
Horses see
worse than
young ones.

Fire pernicious to the
Eyes.

Candle-Light,
Reading by
it bad for the
Eyes.

Presbytia, from *πρεσβυς*, *Senex*, old, is a Distemper just opposite to the former; and is when the *Cornea*, &c. are not so Convex, as they were in Youth: For as any Creature advances in Years, the Eye grows more plain and flat, for want of Vigour in the Blood's Impulse, which was wont to keep the Globe turgid and full. I say, the *Cornea* in old Age becomes flatter or less Convex and this is to be helped by the Use of Convex Spectacles only; and these are to be fitted according to the Decay of the Eye, or Flatness of the *Cornea*; for I do not allow that so much depends upon the other Parts of the Eye, as on the Crystalline Humour's growing plainer and of a lesser Sphere, according as a Person advances in Years; no, I am well satisfied that the *Cornea* or horny Coat (which is the outermost Part of the Eye before) is mostly the Cause of Dimness of Sight, and no doubt but it is the same in Horses: For in them I have observed the *Cornea* become more flat or less Convex as they grew old; but this Creature is not so subject to the Infirmary I am now treating of as Man, by reason they do not live to half the Age. And though it may be said in general that a Horse is as old at Seven, as a Man is at Forty, yet his Eyes (if he is well kept) may continue full, and the *Cornea* be kept prominent till he is Sixteen, or even Twenty Years of Age. Besides, Mankind are so careless of this inestimable Blessing, that they little regard the Value of it, till it is often too late; for they do their Eyes a vast deal of Damage by sitting near and facing hot glaring Fires, insomuch that they, in some Measure, parboil the Crystalline Humour in particular, as well as do Hurt to the rest of the Parts within the Globe of the Eye. But as the Crystalline Humour is (as I have said before) of the most solid Consistence of any of the three Humours of the Eye; therefore less Heat is necessary to make it of such a Nature, as that the Rays of Light cannot pass through it, so as to make Vision distinct. And in such Case, the outermost *Lamina* or covering must be turned off by a Needle, as in the Operation for the *Glaucoma* or Cataract.

Another Thing is Candle-Light, and of this People generally suffer themselves to have too much when there is little Occasion for it. And by how much the more we accustom our selves to it, or read by great Lights, by so much the more are we hazarding our Eye-Sight; and we may thereby bring it into such a State that we cannot see at all; when others of the same Age, who do not hurt themselves by what I am speaking of, can read distinctly. Furthermore, People should turn their backs upon the Light when they would read, or do any thing that is term'd fine Work; but instead of this they turn their Faces directly

directly towards the Light, which is diametrically contradictory to all the known Rules in Opticks.

There is not any Thing in the Composition of a Horse's Eye, which should cause him to see better than a Man can do, in the Night-time; for it is only his being kept more in Dark-ness than we are, which makes a less Light serve his Turn. So that as to Light or Dark-ness we talk of them as we do of Heat or Cold, to wit, as they affect ourselves, not others; for Example, what's Hot or Cold to me may not be so to another, and when it is dark with us, it may not be so with others, altho' in the same Climate.

As to a Cat or Owl's seeing better than other Creatures in the Night, there cannot be any more said in the Case than this, to wit, that those Creatures have their Eyes of a finer Texture or make, and that therefore the Nerves are sooner affected. Add to this, the Inside of the *Tunica Sclerotica* of these Creatures is more black than others, and by that Means the Rays of Light are more imbibed, and consequently a stronger Impression made upon the Optick Nerve. And whoever pretends to give any other Account than this, it must be such as is merely speculative and conjectural. But to return.

The Lens which represents the Crystalline Humour is to be placed at its proper Distance from the Paper behind the Hole in the *Camera Obscura* or dark Chamber; by which Means the Rays of Light are broke or refracted: But whether by a proper Disposition of the Pores of the Glass or Medium, that breaks the Rays, in like Manner as a Ball is thrown into a Tube; or whether, according to the incomparable Sir *Isaac Newton*, the same is performed by Attraction, I shall not at present take upon me to determine: But that the Rays are broke or refracted, few or none will deny, since it is demonstrable by several Experiments in Opticks.

These Rays being brought then by Means of the *Convex* Glass or Lens to their proper *Focus* or Point of Convergence upon the Paper, must (as I have said) imprint a more perfect Image.

A *Convex* Glass of a larger Sphere, which Glass may be compared to the Cornea, as the other was to the *Crystalline*; I say, a Glass of this Sort being put a little on the Outside of the Hole, will make a greater Number of Rays to converge or come to a Point from all Parts of the external Object, and to enter in at the Hole upon the *Lens* or *Convex* Glass on the Inside, and consequently make the Picture or Image still more perfect.

The greater the Convexity of the *Lens*, the larger the Object will appear; for the Angle of Vision will be greater, but the *Axis* of Sight or Distance from the Object will be shortened; so that Creatures which have their Eyes more *Convex* than ordinary,

Why a Horse sees better in the Night than Man.

Why Cats, &c. can see better than Men in the Night.

A *Convex* Glass compared to the Cornea.

The greater the Convexity of the Cornea the larger the Object appears.

ordinary, or such as are Purblind, if they have no other Defect or Weakness but what proceeds from such Convexity, see Things better, and larger than others; yet this must be supposed at their own Distance, which no doubt must be nearer according as the Eye is more *Convex*.

Purblind
Persons see
better as
they grow
Old.

There is no Help for this Defect in Horses, I mean the too great Convexity of the *Cornea*; but this I can say with Truth, such Horses will have a more perfect Sight, or see Things at more proper Distances when they grow older; for by that Time the *Cornea* will become flatter and more plain, and the Rays from Objects at common Distances will not fall so divergent upon the *Retina* as they did before.

A Horse
should not
be rid on a
dark Night
out of a light
Stable.

I must not quit this subject without acquainting the Reader, that if he be obliged to ride in a dark Night, nothing can be worse than mounting his Horse out of a Stable where there are Candles burning; and it is the same with those Horses, which (to the shame of their Masters be it spoken) are often hung or tied at the Door, 'till such Time as the Owner condescends to mount; for, (as I just now hinted,) no Light, or as little as possible should come near a Horse for some Time before he is rid, if the Night be dark; seeing it dulls or confounds his Eye-Sight for some Time at first Setting out, in which Space his Master may very likely repent it, and curse the poor Beast for stumbling, when he himself was the Defaulter.

C H A P. XIII.

Of Diseases of the Eyes in General.

Horses more
subject to
Diseases of
the Eyes
than Men,
and why.

HORSES are exceedingly subject to Diseases of the Eyes, by Reason they are obliged to stoop or hold down their Heads (one half of their time) in order to come at their Food, so that the Blood-Vessels in the Head are all that Time more upon the Stretch, than they can be supposed when a Creature has the Head erect.

It is not to be imagined with the Vulgar Part of Mankind, (*who have no other Way of accounting for Nature's Operations than from Appearances,*) I say, we must not suppose that Humours fall down upon a Horse's Eyes, because he often holds down his Head for a considerable Time together, when he is at Grass; no, the Reason is because the Blood's Circulation, in the Veins about the Neck and Head, is in some Measure impeded or hindered, and this, by Reason of the Blood in the Neck-Veins, being in almost a perpendicular Situation, when his Head is down; so that the impelling Force from the antecedent Blood in the Arteries, must be greater to raise a perpendicular Column of Blood in the Veins, than is required to raise a Diagonal

a Diagonal one, which is, when the Head is little lower than the Body. And nothing evinces this truth more, than what we may observe in sick weakly Persons, to wit, that they will bear twice the Quantity of Blood taken away from any Part of the Body without being sick, when they lye upon a Bed or in a Horizontal Posture, than they can do in an erect or upright one; because, in the latter, the Column of Blood in the Aorta or great Artery, rising out of the Heart, presses so heavily against the left Ventricle or Cavity in the left Side of the Heart that it is scarce able (in its Systole or Contraction) to raise it, in Order for Circulation. And the true Reason of weak People's not being able to sit erect without Sickness proceeds from the like Cause, just now assigned. So that even from this minute Circumstance of a Prone or an Erect Posture, several Feats may be performed with relation to Hemorrhages or Losses of Blood, which to the Vulgar would seem almost unaccountable. And in my Opinion, there can be no other Reason given; why a Horse is not sick (or at least not so to appearance) during the Operation of Bleeding, than the Horizontal Posture or Situation this Creature is formed in; for as I just now said, when an Animal is in a Prone or Horizontal Situation, there is not that Force required in the Heart to drive the Blood round the Body in its Circulation, as there is when in an upright or erect one.

Weak Persons easier in a Horizontal Posture than an erect one.

Why a Horse is not Sick when Bled.

I know no one Thing which more endangers a Horse's Eye-Sight, than of a sudden to turn him from good and warm Keeping (I mean what is commonly understood by high Feeding) to a worse kind of Living; for I have been a Witness of it several Times, and have observed, that when by turning a Horse from good, to very low Keeping, his Eyes have grown dull and sunk in his Head, so that in a very little Time he must inevitably have gone Blind: Yet upon such Horse's being sold into the Hands of a more generous Master, who was not so niggardly in his Allowances to the poor Beast, his Eyes have again become full and clear, and acquired, in some reasonable Time, their former Liveliness and Vigour.

Low-keeping after a Horse has been high fed endangers his Eye Sight.

Mr. Gibson, in his Book of Farriery, p. 67, has one very good Remark, to wit, "That Diseases of the Eyes from outward Accidents, become more or less dangerous according as the Horse is in a good or bad State of Health; when such Accidents befall him."

Mr. Gibson's Remark about the Eyes.

This Remark is not only just as to the Eye in particular, but likewise in the Case of Wounds in any other Part of the Body; and when we say such a one has good Flesh to heal, I cannot find there is any more in the Affair, than that such Person is in a good State of Health, or that his Blood and Juices are of a Balsamick or healing Nature or Quality; and this is every Day's Experience, to wit, that in the recent or Fresh

Good Flesh to heal, the Reason of it.

Wounds, little more need be done (provided such Wound be in what we call a fleshy Part) than binding it up in warm Blood, and by keeping it washed once a Day with any Liquor, it is no matter what, whether Brandy or Rum, or Milk and Water warm, the Wound will heal as well, and much sooner than it would do by the Application of Plaisters, Ointments, &c. And our Fore-fathers, not considering the Reason of Things so well as we do now, imagined fresh or green Wounds were cured by *Sympathy*, and became so far infatuated, as to dress the Instrument, or at least lap up in clean Linen the Tool with which the Wound was given, and by keeping such Instrument lock'd up, and the Wound from the Air, thought it healed in a short Time.

The folly of
pretending to
cure Wounds
by Sympa-
thy.

We have a great many surprizing and even Romantick Stories, of the Efficacy or Virtue of a Powder, called the *Sympathetick Powder*, particularly Sir *Kenelme Digby* is very full in its Commendation, and is of Opinion, great Wonders are performed by *Sympathy*. His Powder was a preparation from Salt of Iron, or what we call *Copperas*; but the Receipt is not worth Transcribing, otherwise I would give it the Reader.

Sir *Kenelme Digby's Sympathetick Powder*.

The Operation of the Powder (as most Preparations of Iron are) was of a Styptick or binding Quality, much of the Nature of Dr. *Eaton's Balsamick Styptick*, sold by Patent, which is a very good and pretty Composition of Steel, or Iron, altho' there seems to be an Absurdity in the very Title, to wit, *Balsamick Styptick*, which is meer Nonfense: However, I say, the Medicine is exceeding prevalent in many Disorders, attended with Losses of Blood; and such Things when applied to Wounds (that is fresh Wounds) bind up and stop the Mouths of the lacerated and torn Blood Vessels, and by that Means the Wound sooner consolidates or grows together.

C H A P. XIV.

Of Wounds or Blows on the Eye, and other external Accidents.

Of Wounds,
Blows, &c.
in the Eye.

IF the Reader will but give himself liberty to study a little the Anatomy of the Eye, according to what I have already set down, he will easily judge whether it is the *Cornea* or Horny Coat, or some other Part of the Eye which is affected: But as the *Cornea* or Horny Coat is mostly the Scene of Action in Wounds of the Eye, I shall chiefly confine myself to that particular Part in this Chapter: For the *Cornea*, or *Tunica Adnata*, which is only the opaque *Cornea* or White of the Eye; I say these, or the one of these, always suffer in Wounds, Blows, &c. of the Eye, and the more so, according as the Instrument

strument with which the Wound is given is more or less pointed or sharp. But if the Blow or Stroke be given with an obtuse or blunt Instrument, then the Parts adjacent to the *Cornea*, as well as those within the Globe of the Eye, may be concerned, insomuch that the very Blood-Vessels which nourish the *Iris*, Crystalline, &c. may be broken, and the whole Eye gush full of Blood in an Instant. Nay, I have known it happen from the Stroke of a blunt Instrument, such as a Cane or the handle of a Whip, (which passionate People are but too apt to make use of) so that the very Crystalline Humour of a Horse's Eye has been forced out of its *Capsula* or little Bag, and either fallen down to the Bottom of the Aqueous Humour, or advanced forward through the Hole of the *Iris*, which is, what People (though improperly) term the Sight of the Eye; and which so ever of these is the Case, it is not to be remedied by Art; so *Honey of Roses, with a little Spring Water, and the White of an Egg, mixed together, and applied with a Feather*, is, in my Opinion, as good as any Thing else one can apply, to assuage the Inflammation, &c.

Honey of
Roses and
Spring Wa-
ter, good a-
gainst In-
flammation
of the Eyes,
from Bruis-

Mr. *Gibson* talks of Plantain-Water, or Rose-Water; but these kinds of distilled Waters, with many more which are obtained from Herbs, and supposed in their Natures cooling, have not any Virtue more than Pump-Water. And therefore, the common Trick of Apothecaries substituting it instead of Plantain-Water, is no harm at all: Therefore, if this or the like were the greatest of their Impositions, I should never blame them, whatever Notion the good old House-keepers may entertain of Plantain, Rose, or Hyssop-Waters, with at least forty more of the same Tribe.

The Infig-
nificancy
of Rose-
Water,
Plantain
Water, &c.

It is very possible for a Horse to get such a Bruise or Crush upon his Eye, in casting or throwing over, (especially if any Stone or other hard and unequal Body, lie in the Way) that the Humours which ought to be in their distinct and separate Coverings, may be turned a little sideways, and his Sight lost, although the Eye keeps its due Fullness and Proportion: But this Disorder cannot well be known, but by those who understand the Anatomy of this so admirably contrived Organ of the Body.

I remember a very odd Case, something like this I am treating of, which happened to a Man's Eyes, and, as it is I think scarcely to be parallel'd, I must beg leave to name it in this Place.

The Case was this, one *Henry Dumball*, near *Wigan*, happened to receive a Stroke upon one of his Eyes in a Quarrel, which intirely deprived him of Sight on that Side, although his Eye was as plump and full as the other, nor did he tell me when I saw it, that he had much Pain after the Misfortune.

I observed the Humours of the Eye displaced, though I

had reason to believe their Coats or Coverings pretty whole and entire, The *Cryſtalline* was advanced nearer the *Pupil* (or little Hole in the middle of the *Iris* than it ought to be, and with all turned ſide-ways; ſo that by this (I mean the *Cryſtalline*'s being advanced nearer the *Pupil*) the Rays of Light muſt fall confuſedly upon the *Retina*, in the ſame Manner as when in the *Camera Obſcura* before deſcribed, the Paper which repreſents the *Retina*, is held at too great a Diſtance from the *Con-convex* Glaſs, which repreſents the *Cryſtalline* Humour, So that finding the Eye in this Pickle, I adviſed the poor Man to reſt contented, and not throw away his Money upon ignorant *Li-nerants*, which we daily ſee is too often the Caſe of the deluded Vulgar: But this Man's Evils did not end here; for a few Years afterwards he happened to fall out with one of his Neigh-bours, who in the Fray twiſted his Finger into poor *Dumball*'s Hair, and ſqueezed his Thumb with ſuch Violence into his Eye, that, as the firſt, ſo was the other Eye loſt, and as near as poſſible remained in the like Situation and Circumſtances with it. And this indeed was a deplorable Caſe, which made the poor Man ſeek out on every Hand for help, notwithstanding that I had given him my Opinion, that his Eyes were incurable by Art; and if ever he recovered, it muſt be by Accident. But what does it ſignify talking to blind Men, and telling them the Truth; for though they are abſolutely incurable, they are ſtill in hopes of receiving Benefit from ſome *Pretender* or other, who does nothing effectually beſides picking the Patient's Pocket; and really one would be ſurprized to find ſo many poor deluded Mortals, ſeeking Relief from theſe ignorant *Impoſtors*.

Mr. Nicho-
las Kent's
Caſe.

I know ſeveral Gentlemen and Ladies, who have the Misfor-tune to be incurably blind; but more particularly one, to wit, Mr. *Nicholas Kent*, an eminent and very honeſt *Sollicitor* in *London*, who is quite Blind; yet to a Perſon not well acquaint-ed with the Structure of the Eye, this worthy Man appears as if he could ſee as well as any one in the Room with him. His Caſe is a *Varix* of the Blood-Veſſels, chiefly of the *Retina*; what I mean by a *Varix*, is a Dilatation or Stretching of the Veins, not the Arteries, where the Blood turns into a kind of Eddy, and makes a Knot upon the Part. I ſay this is Mr. *Kent*'s Caſe, and is not any ways remediable, though I have been informed he applied himſelf to Mr. *T---*, the Travelling Oculiſt, who I doubt not would give good Encouragement for a good Fee. But I have reaſon to doubt that Mr. *T---*'s Hand and Heart are mere Strangers to one another; or that if he ſpeaks as he thinks, he is very ignorant. But to return to poor *Harry Dumball*, who led me into this tedious Digreſſion.

Dumball's
Caſe conti-
nued.

I ſay, this poor Fellow, after he had been Blind ſome Years, applied himſelf to Mr. *Green*, ſaid to be Son to the famous

Green

Green of *Doncaster*, a pretty good *Stage-Orator* in his Time, who promised to restore him his Eye-Sight: But the Man being poor, a Person undertook to make a Collection for him to pay the Doctor, so amongst the rest they ask'd my Charity. I told them that I would lodge ten Guineas to be paid Mr. *Green*, when the Cure was perfected, but was unwilling to give any Money otherwise; however, I gave half a Crown, and a little wholesome Advice into the Bargain; which was, not to give Mr. *Green* any Money, till such Time as he had perfected the Cure, seeing he had promised it on such Conditions. In fine, this *Mountebank* poked with his Needle, for some considerable Time together, in the poor Man's Eye, (for he did but try one of them,) yet without Success. However, thus much I must say in behalf of Mr. *Green*, which is more than I can say for any else of the *Itinerant Tribe*, that he had not thrust his Instrument or Needle unskilfully into the Man's Eye, for he had not in the least Hurt or Wounded any of the Blood-Vessels of the *Iris*, nor had he turned the Point of the Needle inward, so as to do any Damage to the *Crystalline* or *Vitreous* Humour; but on the contrary, he had (like a skilful Operator so far) kept the same wholly in the *Aqueous* Humour, with a steady Hand, and his only Fault or Imperfection was, that he was not able to judge rightly of the Disorder: For, had it been a Cataract that this Man had laboured under, I am perswaded this Gentleman would have removed it with safety; so that in the Main, he neither did Good nor Harm to this Blind Man, which is much more commendable, than what is done by many ostentatious *Pretenders*, (who would have us believe they can play Cups and Balls in a Mans's Eye,) to wit, thrust the Needle so unskilfully into this noble Part, that they make it impracticable for any after them to do Service; although the Distemper (before they meddled with it,) was such, as might have been removed by a good Hand, even in the fourth Part of a Minute. But lest I should intrude too much upon the Reader's Patience, I draw near to a Conclusion of this true History

As I just now said, *Dumball* still continued Blind, after what had been done to him by Mr. *Green*; but a few Years afterwards, he happened to be jesting and wrestling with one of his Neighbours, who caught him round the Head in his Arms, and squeeased his Face against his Breast, and a Button by Accident happening to light against one of the Blind Man's Eyes, it seemed to hurt him very sore, and some Blood was (by the Violence of the Squeeze) forced out of the Eye; but what is most to be wondered at, the Blind-Man received Sight of that Eye from this Accident; which is more than all the Surgeons, Oculists, &c, put together, could have done by Art. And whosoever should tell me he could have performed this by any

Dumball's
Case continued.

Instrument, or other Contrivance, I should look on such Person, as no more than a Vain empty *Coxcomb*, who can say more in one Minute, than he will perform in his whole Life, though he should outlive *Methuselah*.

Now, in this Case, there is no Manner of Doubt to be made, but the *CrySTALLINE* Humour of the Eye must (by the violent Squeese of the Man's Thumb) be forced out of its *Capfula* or that thin Covering by *Anatomists* called *Tunica Aranea*; and in such Cases, the Rays of Light must be brought to a *Focus* or Point, quite in a different Part of the Eye to what they ought to be, and of consequence the Man's Sight must be lost while the *CrySTALLINE* continued in that State and Condition: And I am convinced, this was the true Case; for I could plainly perceive a little of the Edge of the *CrySTALLINE* Humour (especially if I look'd side-ways) thro' the *Pupilla* or Sight of the Eye, and when this Eye happened to be again press'd by the Button of a Coat as aforesaid, the *CrySTALLINE* slipped back into its proper Place, which is (as I have already said) immediately behind the *Iris*, and into a small Cavity in the middle of the *Vitreous* Humour; and by this Means, the Rays became properly convergent upon the *Retina*.

Look well into a Horse's Eye before you prescribe.

In the first Place, if a Horse's Eyes be out of order, they should be well looked into, before you prescribe: For, if he be quiet, one may easily turn up the Eye-Lids, and view if any foreign Body, such as Dust, or Moats of any kind, stick upon their Inside, or upon the Horny Coat, which, as I have said, is the transparent and fore-part of the Eye; if there is, it must be carefully wiped off with a Sponge and Water. The Sponge may be tied to the End of a small Stick, or the like; after this the Eye will mend of itself; for *when the Cause is taken away the Effect ceases*; only let the Eye be now and then washed with the white Eye-Water, as hereafter prescribed.

The white Eye-water made for about 6d. per Quart.

Take *Roche-alum*, and *white-vitriol*, each one Ounce; Calcine or burn them to a *Calx* or *white Mass*, in a *Crucible* or upon a clean *Fire-shovel*; when this is done powder 'em and mix 'em with three Pints of *Boiling-Water*; to this may be added of *Lapis Calaminaris* finely-powdered, one Ounce.

And this may be sufficient for most Rheumy Sore or Blood-shot Eyes, or to heal any little Wounds or Ulcers of the *Cornea*, or *Tunica adnata*, whether occasioned from Distillations of Rheum, or Extraneous Bodies which may have fretted and wounded the same.

If this Proportion of the *Roche-alum* and *Vitriol* be too sharp, it may easily be lowered by adding a little more Water to it; and as I have before hinted, Pump-Water is as good as *Plaintain* or *Rose-Water*.

If the Horſe's Eye be ſwelled and inflamed, he ſhould be bled in the Neck, or where elſe you pleaſe; for, notwithſtanding what Mr. *Gibſon* has ſaid about making an Oriſice too near the affected Part, there is not ſo much in the Matter as he would have us believe, unleſs in very acute Caſes; becauſe all the Good which accrues from Bleeding is certainly no other than from the Quantity's being leſſened. Therefore, in my Thoughts, when this Operation is performed either upon Man or Brute, it ſhould be done to the Purpoſe, that is, to take away as much Blood, as the Violence of the Symptoms require, and the Strength of the Creature can well bear; tho' indeed, I adviſe that the Blood may be drawn away at ſeveral repeated Operations, rather than all at once, for Reaſons very well assigned by the ingenious Dr. *Hales* in his *Hæmoſtatical Experiments*, vol. 2d. As to *Conſerve of Red Roſes*, *Vinegar*, *Bole-armonick*, *Whites of Eggs*, or ſuch like outward Applications, there is not much to be expected from them, ſo that, the Horſe's Eye need only be bathed or waſhed well with warm Water and a large Sponge; or, for want of ſo uſeful a Thing about a Stable, a pretty large Piece of Linen-Rag may ſerve the Turn. And for healing any Wound of the Eye, I dare ſay the following Ointment will be ſerviceable, when the aforeſaid Water is not in Readineſs, provided the Owner of the Horſe be endow'd with a little Patience.

Take Ointment of Tutty, one Ounce; Honey of Roſes, two Drachms; white Vitriol calcined or burnt, one Scruple; mix theſe cold, and apply them a little warmed with a Feather between the Eye-Lids, Morn and Even for ſome Time, and waſh his Eye at Noon with a little warmed blew-Milk and a Sponge.

Purging, Rowelling, Clyſtering, &c. are not of much ſignificancy in the Cure of Wounds of the Eye; but as I have juſt now ſaid. Bleeding and the Ointment, as before preſcribed, are (with Patience) ſufficient to effect it.

I muſt not cloſe this Chapter without taking Notice of one Thing in Mr. *Gibſon's Book of Farriery*, page 70. he ſays, that "when a Horſe's Eye happens to burſt ſomewhat out of its Socket, by the Violence of a Blow or Wound ſtretching or cutting the Muſcles, the firſt Thing is to reduce it and put it carefully in it's place, applying the Charge, &c."

Now in my Thoughts, one may as ſoon, and with the like Succeſs, put the Brain into its Place, after it is turned out, as the Eye. And tho' I agree that the Muſcles may be relaxed and recover themſelves again without much Damage; yet I cannot think the Eye with its Optick Nerve, (conſidering its Inſertion into ſo ſoft a Part as the Brain, whoſe Contexture is ſomething different from Elaſtick,) I ſay, I cannot imagine that the Eye can be turned out of the Head, or Socket wherein it ſhould lye, without cauſing effectual Blindneſs. Yet the learn-

Bleeding is good for an Inflammation in the Eye.

An Ointment for Wounds of the Eye.

Purging, &c. of no Service in Wounds of the Eye.

ed Dr. T---r, may perhaps be of a different Opinion; for I have had the Honour to see him perform some surprizing Operations upon Eyes: But I must not omit telling the Reader that they were dead Calves Eyes, tho' indeed the *Doctor* told us he had done the like upon living Subjects, and that Dr. *Hollins*, and Dr. *Chefelden* were Witnesses to his Performances: But (low be it spoken) the latter of those worthy Gentlemen favoured me with a Letter, wherein he satisfied or rather confirmed me in my Belief of T---r's groundless Assertions.

Soft Food
proper for a
Horse with
distempered
Eyes.

Soft Food, or such as does not require much Chewing, is most proper for a Horse that is diseased in his Eyes, and if it be in Summer-time, cut Grass is best in the Stall; but holding down his Head in the Pasture cannot be good for him, for Reasons before assigned.

C H A P. XV.

Of Rheumy and Inflamed Eyes.

Rheumy
Eyes.

THERE are Horses, no doubt, frequently troubled with Rheums and Inflammations of the Eyes, which have been ill cured while they were Colts; so that the Blood and Humours acquired a more than common Bent that Way, where the usual Discharge was made, for some considerable Time before, insomuch that it is often very hard to stop it. And really it is surprizing to observe what large Quantities a Person will bleed from the bite of a Horse-Leech, after that Reptile has filled itself: But the Reason is, the natural Bent of the Blood to the Orifice where the Leech fastened. And indeed I have often seen the good old Gossips hard set to stop the Blood from flowing too much out of the small Wound made by this little Creature, and I have often heard People (who have been used to Bleed Spring and Fall) say, that they could perceive the Blood pricking and making an Endeavour for Discharge at the old Orifice.

Observation
on the Bite
of a Horse-
Leech.

The Diameters of the Vessels increased by long and continued Discharges. The Cause of Rheumy Eyes.

Just thus it fares in Relation to most Discharges; for if they continue too long, the *Diameters* of the Vessels near the Part are enlarged by the continual *Influx* of the Blood and Humours; so that 'tis some Time e'er they can be restored to their former State and Condition of *Elasticity*.

The Causes of Rheumy Eyes are very numerous; as Surfeits by hard riding, and the like. And I have often observed that low and poor Feeding of a Horse which has been used to better, very much indangers his Eye-Sight; and, that upon allowing him a proper Quantity of Oats, &c. he has recovered his Sight to a Miracle, even after his Eyes might be thought sunk in his Head (as it is called) and there is a very good Reason

son for it, if one would but consider a little, which is, that while a Horse eats a good Quantity of Oats, and is much in Use, his Blood and Spirits have their due Motion and Vigour; so that the Globe or Ball of the Eye is kept full, and the *Axis* of Vision lengthened to a proper Distance. But if such a Horse happen to fall into bad Hands, who *ride him hard*, and allow him little Corn, his Eyes are in Danger, by Reason it will often produce an *Atrophy* or Consumption of the Eye, for want of due Nourishment to be derived from the Blood, &c. for the Use of this so noble and wonderfully contrived Organ.

An Atrophy or Consumption of the Eye how Caused.

If a Horse is *Plethorick* or too full of Blood and Spirits, and his Eyes are inflamed or Rheumy, in such Case, Bleeding, Purging, Rowelling, &c. are of Service, altho' Super-purgation or Over-purging is as bad, and often of dangerous Consequence, not only to the Eye-Sight, but also to the Bowels or Intestines, which it much weakens. Of such Concern therefore is it to keep the *Golden Mean*, and not to be over-fond of Purging or Bleeding our Horses when there are very small Reasons for it, nay perhaps no other than that we are fond of seeing such Evacuations, by Reason they best quadrate with our Outward Senses.

The Method of Cure for Rheumy Eyes.

I shall offer the following as a good and safe Purge for Rheumy Eyes.

Take *Horse-Alloes*, ten Drachms; *Cream of Tartar*, one Ounce; *Senna in Powder*, half an Ounce; *Oil of Anniseed*, two Drachms, *Syrup of Buckthorn*, as much as is sufficient to make it into a Siff *Mafs*: Which form into two Balls, and give them in the common Manner with about a Quart of warm Ale to wash them down.

A Purge for Rheumy Eyes.

The Price of this Purge should be about Sixteen Pence, (Apothecaries Profit,) and there is no fear of any of the Drugs being bad, they are so cheap, unless the *Oil of Anniseed* which is worth eight Shillings a Pound at *London*; and as I have not heard of any Method of trying its Goodness without a deal of Trouble, I must recommend my Readers to make choice of *honest Apothecaries* (if any such there are) to make up the Medicines I prescribe.

(A- The Price.

Oil of Anniseed has this peculiar Quality in it, different from most, if not all other *Chymical Oils*; to wit, that it congeals or seems to freeze even in warm Weather.

After Bleeding, Purging, &c. it will be of Service to Use the Water, such as before prescribed.

If a Horse has Rheumy running Eyes, the Water will be of great Use by putting it into them warm, not only twice but several Times a Day, perhaps four or five Times: For the *Tunica Cornea* or outward Part of the Eye, is (in these Cases) full of small Wounds or Ulcers like so many Pin-Points, which require something drying and healing to be apply'd pretty often, that

How to be apply'd.

the

the Lodgment of the sharp Humour may not farther corrode its tender Fibres.

Lastly, I shall for Variety set down an Ointment for the same Use as the Water, which I have known succeed where that had failed. And I can attribute it to nothing more than the Ointments continuing longer upon the Eye, and not being so soon washed off by the Moisture and Movement of it.

The Ointment for Sore Eyes.

Take *Lapis Calaminaris*, and *Tutty* prepared as fine as may be, (by grinding upon a Marble) each half an Ounce; *Roman Vitriol* in Powder, half a Drachm; *White Vitriol* and *Alum Calcined*, each half an Ounce; *Camphire* two Drachms; mix these very well in three Ounces of fresh Butter, and apply 'em warm thrice a Day with a Feather; so that it actually get into, or rather upon the Horny-Coat of the Eye. And I beg Leave to inforce this the stronger, because most People do not sufficiently open the Eye-Lids when they apply Waters, Ointments, &c. for the Cure of Rheumy or Sore Eyes.

I have in my Notes upon Capt. *Burdon's Packet Farrier* remarked, that the *Captain* was a little out in his Calculation, when he said, "no Powders ought ever to be put into a Horse's Eyes;" and shew'd that the Water those Powders are mixed with, serves only as a *Vehicle* to them, no more than the fresh Butter in the Ointment just prescribed; so that in Fact it is the Powders which are the *Basis* or chief Thing in the Composition. Nor is it available to set down more Forms than these two, seeing the Water, or Ointment, may either of them be made weaker, as the Case requires, by adding more Water to the first, or more Butter to the latter.

I have read over at least an hundred Forms of differently contrived Eye-Waters, Powders, Ointments, &c. for the Cure of Rheumy Eyes, but let these suffice with those who have so much Learning as not to pin their Faith upon the Number of Ingredients in any Prescription, but rather upon a few rightly chosen Drugs, properly adapted to the *Curative Intention*; for of the other Practice there is no End, neither is it supported by right Reason.

De Grey censured.

De Grey has some Things here and there worth Observation in his Book of Farriery; but he had a comical out-of-the-way Notion, when he fancied that *Human Dung* fry'd to a Coal and powder'd, and blown thro' a Quill into a Horse's Eyes, takes away *Specks*, *Films*, &c. Indeed there is something of a Salt called *Animal-Salt*, contained in the Excrement of all Creatures, but more especially in the Dung of those which discharge the Urinous Salts along with it, having no Piss-Bladder or Receptacle for the Urine, such as Geese, &c. whose Dung is white at one End; (when it dries hastily;) and these are the Urinous Salts of such Use among the common Sort of People for the Cure of the Jaundice; but I am of Opinion that the Dung of Animals,

Animals, however cooked, will be Dung still, and not avail much in curing any Diseases of the Eyes.

C H A P. XVI.

Of Moon-Eyes, or Lunatick Eyes.

Of Moon-Eyes.

MR. Gibson defines *Moon-blindness* to proceed from “an obstinate Stagnation in the small Arteries of the *Tunica Adnata* or outermost Coat of the Eye, commonly called the White of the Eye, and a Relaxation of the small Kernels that are seated at each of its Angles or Corners; and that by the *Lentor* or Corrosiveness of the Matter, it at length destroys the Transparency and Clearness of the *Cornea* so as to cause Blindness.”

Mr. Gibson's Definition of Moon blindness censured.

This is, in my Thoughts, a very lame Description of the Distemper; for if there was an obstinate Stagnation of the Blood in the small Capillary Arteries, the Consequence would be a Suppuration or Gathering, (as it is commonly called;) and from thence the *Cornea* or Horny-Coat would be destroyed in Part, or in whole, by the Formation of so thick a *Cicatrix* or Scar that the *Rays* of Light could not be admitted sufficiently, in order to form distinct Vision: Whereas, we find by Experience, that Moon-blind Horses do, at some Particular (though not regularly stated) Times, see very well, in so much that no Alteration can be observed, either within or without the Globe of the Eye.

Secondly, I have seldom observed that the Corrosiveness of the Humour or Matter, destroys the Transparency of the *Cornea*; I mean in *Lunatick* or Moon-blind Horses. And therefore I am pretty confident, from repeated Observation and Dissection of Moon-blind Eyes, that the true Seat of this Distemper (so very peculiar to Horses) is in the *Iris*, otherwise termed *Uvea*, before described; and that it is an Inflammation of that particular Coat of the Eye, which may proceed from several Causes, such as Surfeits, hard Exercise, or the like; and the faint Yellowness observ'd by the *Sieur de Solleysell*, appearing under the Apple of the Eye, may plainly be seen by any one, who understands the *Anatomy* of this Organ, situate upon the *Uvea*. And this Yellowness is no other than what frequently happens in other Parts of the Body, when an Inflammation is going off, occasioned (as I apprehend) from the Blood and Humours being obstructed in their Circulation.

The true Seat of the Distemper.

From what has been said, it will easily be judged how we ought to proceed in the Cure of this Malady. And first of all, lessening the Quantity of Blood must have the Preference:

The Cure.

This

This ought to be performed as soon as may be, and a good deal taken away from the Thigh-Veins (if you please) by Way of Revulsion. After this, Purging may take Place, and such Things which promote the urinary Discharges; and for this End, I know nothing better than the *Turpentine*s of all Sorts. For Example.

Balls for
Moon-ey'd
Horses.

Take three Ounces of *Venice Turpentine*; living *Millepides*, half a Gill; bruise 'em, and mix 'em with the *Turpentine*, and make all into a Mass, with Flower of *Brimstone*: Out of which may be formed small Balls, of the bigness of Pidgeons Eggs; one of which may be given in a Morning for a Fortnight together, after the Horse has been purged twice or thrice, with the common *Aloes Purge* before prescribed.

I know Mr. *Gibson* says, *Phlebotomy* or Blood-letting, oftentimes proves hurtful in *Moon-blindness*; but certainly he has not thoroughly considered the Cause of this Disorder, seeing nothing more, or sooner relieves the Inflammation, than lessening the Quantity of Blood.

Outward
Applications
of no Ser-
vice, and
why.

Cutting the
Temporal
Arteries, a
Cure for
Moon-
blindness.

I do not think that outward Applications are of Service to Moon-blind Horses, by reason the Seat of the Distemper is within the Ball or Globe of the Eye, and such Things reach no farther than the *Cornea* and outward Coats.

Lastly, When all other Proceedings have failed, I have known the Temporal Arteries tied with waxed Silk in two Places, each at the Distance of about an Inch, and then cut asunder, and the Wound healed with any common Digestive Ointment. And this Method I have seen perform a Cure more lasting than any other Practice whatsoever, and a very good Reason there is for it, to wit that by making a Ligature upon the Temporal Arteries and dividing them, the too great Influx of Blood to the Eye is impeded, though there are sufficient Branches left, to furnish a proper and due Quantity of Blood to it's Parts: Yet setting all these Things aside, if I had a Horse subject to this Distemper, the first Thing I should do, would be to get rid of him, though I don't say I would sell him for a Sound Horse, as I have heard is too common among Dealers, who think nothing of Conscience or Reputation.

There is little or no Reason in what Mr. *Gibson* or the *Sieur de Solley* have writ, with Relation to Foals or Colts which have Oats given them, to wit, that their Eyes are in Danger from thence; because in chewing the Oats, the Muscles about the Eyes are so strained that a Defluxion of *Rheum*, or in their Words more Blood than necessary is drawn towards the Eyes, by the Motion as aforesaid. And therefore they direct, that the Oats be first ground or stamped, which I think is proper, so far as they are nearer Digestion, or in other Words more easy

easy to digest: And this is all I can say in recommendation of the Paragraph.

C H A P. XVII.

Of Films, Webs, &c. causing Dimness of Sight.

IT is most certainly of the utmost Importance, to distinguish between those Diseases or Infirmities affecting the outward, from such as have their Seat upon the inward Parts of the Eye; for if the Disorder be inward or within the Globe of the Eye, all outward Applications of Waters, Powders, Ointments, &c. are quite out of the Question: And where there is one Disorder of the Eye outwardly, there are ten inwardly, (I mean in the Globe of the Eye;) for the Eye-Lids, &c. are not strictly to be accounted as Parts of the Eye. Therefore, I say, unless a Person will give himself the trouble to learn something of the *Anatomy* of the Eye, (which may be done in an Hour's Time,) he can never be able to tell whether the Distemper be inward or outward. And I have often been surprized to see the positive Ignorance of *Farriers*, nay even of some *Surgeons*, (that should know better,) who, when the Creature has laboured under the Distemper called a *Cataract*, (which is an Affection of the *CrySTALLINE* Humour within the Globe of the Eye,) have been applying Eye-Waters, &c. as if the *Cornea* or outward Coat had been inflamed, and full of small Ulcers.

Mr. *Gibson* sets down an Eye-Water of a blue Colour, for the Cure of Films, occasioned from an Inflammation of the Eye; and the same is a very good Water, but one need not take the trouble of making it, for it is to be had at any *Apothecary's*, at two Pence an Ounce; only ask for *Aqua Saphirina*, or the blueish Eye-Water. It is called *Saphirina*, from the Resemblance in Colour, to the Sapphire Stone.

Aqua Saphirina for the Cure of Films. The Price. Why called *Saphirina*.

I shall only recommend the Ointment prescribed for sore Eyes, *Chap. 15.* whensoever a Horse has any Film or Speck, occasioned from the Sharpness of Rheum or the like, falling upon his Eyes: But then, I would be understood to use it when the Distemper is new or Recent; for it will (to my Knowledge,) both cleanse and heal the little Sores with safety: But if the Film or white Skin upon the Eye be of long standing, or what we call a *Cicatrix* or Scar from the Healing of a Wound of the Eye, I say, if this be the Case, I very much question whether any Thing will be able effectually to remove it, notwithstanding there are many Nostrums for the Purpose. And if any Good be done, it must be from the Use, nay the long continued Use of such Things, as by their Roughness and Solidity (when introduced into the Eye) scour off the outward

Powdered
Glas proper
for taking
off Films,
&c.

ward Coat of the *Cornea*; and these Things being mixed with Honey, or any other healing Thing, may now and then be of some little Service. And in my Thoughts, Powdered Glas is most likely to effect a Removal of such Films or Specks, which appear upon the outward Surface of the Eye, when there is not any Inflammation accompanying them: For Glas finely powdered, and sifted thro' a fine Flower Sieve, mixed with Honey and a little fresh Butter, I have known to take away a Speck or Film, when all other Things have failed; and the Reason is, no doubt, because Glas will keep its Form, and not be dissolved into lesser Particles by the Motion and Waters of the Eye, whereas *Tutty*, or *Lapis Calaminaris*, by such Motions, &c. of the Eye, are render'd so smooth, that they take little Effect upon so hard a Body as the Film is, when it has been of long standing. And the Operation of the Glas in the Eye, may well be compared to the Fish-Skin used by *Joiners* in smoothing up their Work; for as this smoothes and polishes the Wood, so does that the *Cornea* or Horny Coat of the Eye; and with safety too, as I have often found by Experience. But then (as I said before) it seldom succeeds if the Film is old and hardened, unless the Owner of the Horse has a deal of Patience, and continues the Use of it a long Time together.

Cutting out
the Haws.

The Haws
what.

As to cutting out the *Haws*, when the Excrecence is so large that it damages a Horse's Sight, there may be something said for it: But as this simple Operation may be easily performed with Safety, by any of our common Farriers, and as the same is sufficiently described by Mr. *Gibson*, I shall not trouble the Reader with an Account of it any farther, than telling my Opinion what the Disorder is. And First, I take what the Farriers call the *Haws*, to proceed from a long and continued Defluction of Rheum upon the Eye, or a preternatural Heat within the Globe of the Eye itself; and by this the Kernally Substance (as Mr. *Gibson* terms it) in the greater *Canthus* or Corner of the Eye, towards the Nose, becomes hard and gristly, insomuch, that I have seen it advance near as far as the middle Part of the *Cornea*, commonly, tho' erroneously, stiled the Sight of the Eye. And in this Case, as I just now hinted, there is nothing to be done but to cut them away, and the Ointment for Sore Eyes before prescribed, will be sufficient to heal the Part, at the same Time it is employ'd to polish and heal the Disorders of the *Cornea* or outward Parts of the Eye.

A good Ob-
servation of
De Grey's.

De Grey makes mention of the *French Marshals* or Farriers taking up the *Wash* of the Eye with a Needle and Thread, and cutting out the *Haw* as close as they can, but discommends such Practice, for as much as that the Horse becomes blear-ey'd afterwards. Therefore it is best to cut out so far only

only as the Gristly Part (which is really the Haw) spreads and no farther, by Reason if you take away too much of the Glandulous Substance, there will be a Deficiency in that Part of the Eye; Infomuch that the greater *Canthus* or Corner will stand full of Water. So that *De Grey* has very justly observed in this Case.

Mr. *Gibson* is very dark in his Reasoning about several of the Distempers incident to the Eyes of Horses, particularly what he says of a *Cataract* at page 83 is very far from Truth; to wit, that the Matter which forms this Disorder is continually falling into the *Aqueous* or Watery Humour, and farther, that we may know a *Cataract*, before it is ripe by rubbing the Outside of the Eye; for, by such Means he says it will shift it's Place.

Mr. *Gibson's*
Account of
a *Cataract*
Censured.

I cannot indeed be surprized that Mr. *Gibson* should mistake the true Seat of a *Cataract*, seeing many greater Men than he have fallen into the like Error, and imagined it placed in the Watery Humour; whereas nothing can be more absurd and ridiculous: For, it is now made manifest that the *Cataract* is situate upon the *Crystalline Humour* of the Eye, and is nothing more than an Alteration or *Opacity* of one or more of it's Coats or *Strata*. For the *Crystalline* is composed of different *Strata* or Lays in like Manner as you see an Onion; and when (as I have said) one or more of these Coats become Opaque or Dark, so as to hinder the Rays of Light from passing thro' the Body of the *Crystalline* in order to fall properly upon the *Retina*, I say this is what constitutes the true *Cataract*, which differs in Colour, being sometimes White, Pearl-Colour, Yellow, Black or Greenish: And I am of Opinion the two first only are curable, yet not by any Application outwardly or Medicine inwardly administred, but by Manual Operation with the Needle, which turns off the *Lamine* of the *Crystalline* that are diseased, and then the Rays are admitted thro' the remaining Parts. But the Mischief is, that if you couch a Horse for a *Cataract*, you can't make him, or rather you can't contrive him Spectacles to wear afterwards, to help the Deficiency or Planeness of the *Crystalline*, so that his Sight will not be at all perfect, tho' he may have enough to keep himself out of Pits and Ditches.

The true
Seat of a
Cataract.

A *Cataract*,
what.

Removed by
manual O-
peration on-
ly.

It has been and I believe still is a Notion among Dealers in Horses, as well as Gentlemen, that when a Horse starts much, or seems frightened at every Thing he meets, his Eyes are bad, and Mr. *Snap* with like Reason, believes such Horses have congealed Bits like Motes floating in the *Aqueous Humour*; and that these when they become adherent or sticking to one another, form what we now call a *Cataract*: But these Specks, Flies, Insects, or the like, which are imagined to go to and fro before the Sight of Human Creatures, (and no doubt it

Mr. *Snap's*
Opinion of a
Cataract
censured.

is the same in this Respect as to Brutes,) are no other than the diseased Parts or Particles of the Outward Coat of the *Cryſtalline Humour*, in an Initient *Cataract*; and the Reason we do not perceive the Motes or Representation of Flies, always in the same Place, is plain to any who has the least Notion of Opticks; for, unless the Eye be kept truly steady and fixed in the same Position, it is not possible a Person should observe the Mote or Speck always the same.

Some will have it, that the Representations I am speaking of are not occasioned by the diseased *Cryſtalline*, and pretend to prove from Experiments in Opticks, that no Objects fixed upon the *Cornea* or *Cryſtalline* can be represented upon the *Retina*, forasmuch as those Parts are so near the *Retina*, and of such Convexity, that the Pencils of Rays, passing from Objects thro' them, cannot fall upon the *Retina*, so as to be distinguish'd; and therefore conclude, that the Parts of the *Retina* (in the Distemper I am treating of) are too much compress'd by a Distention or stretching of the Arteries, and that such Distention is often the Cause of a *Gutta Serena*.

The Cause
of a *Gutta
Serena*.

These may seem plausible Arguments, but I must own I could never observe any Part of the Eye disorder'd in the Case of a *Cataract*, besides the *Cryſtalline Humour*, altho' I have dissected several Eyes which were troubled with such Malady. Indeed I cannot help thinking, but that the *Gutta Serena* may proceed from such Distention or stretching of the Coats of the Arteries upon the *Retina*, I mean when such Disorder proceeds from a Bruise or the like, and then it is mostly confin'd to one Eye only: But if both Eyes be affected with a *Gutta Serena*, and that the Distemper came without much Pain, I am apt to believe the Seat or Cause is an Obstruction of the *Optick Nerve*: But whether it be occasion'd from a Distention of the Blood-Vessels which compress and squeeze the *Retina*, so that Objects cannot be represented to the Brain, or whether it is an Obstruction, Convulsion, or Paralytick Indisposition of the *Optick Nerve*, I think is not much to my present Purpose, seeing I am satisfied they are equally incurable by Art.

A remark-
able Case.

I had a pretty odd Case of the Eyes once under my Care, which was this. A young Fellow, who was a Sailor, and a visiting his Friends upon his Return from Sea, who lived near *Ormskirk*, being one Day walking in the Fields by himself, was struck blind all of a sudden, without any previous Indisposition, either in his Habit of Body or Eyes. Upon this, he was oblig'd to call out and make a Noise for Help to carry him Home; and as Luck would have it a Foot Path leading thro' the same Field he was in, somebody pass'd that Way in a little Time, and led him to his Habitation. After a while he was conducted to me at *Lancaster*, where, upon my viewing his Eyes, I found it a *Gutta Serena* which he was afflicted with, and judged

judged the same incurable, notwithstanding the poor Man's Eyes appear'd as clear, bright, and transparent, both within and without, as any Person's living. The Reader may suppose the Confusion and calamitous Condition the young Man must be in, who had his Bread to earn, when I told him his Case was desperate, which proved but too true; for he lived near three Years blind afterwards when kind Death put an End to his miserable Life.

Now what I name this Case for, is to shew, that a *Gutta Serena* may proceed either from a Dilatation of the Blood-Vessels, or from an Obstruction of the *Optick Nerve*; for I am sure no Person (howsoever skill'd in Opticks, and the Anatomy of the Eye) could be able to judge which of the two was the Cause of the young Sailor's Blindness: Notwithstanding, I will allow, they might argue for some Time upon the Subject in a metaphysical Way, without being ever a Whit nearer Truth, than they were at first setting out.

What Mr. *Gibson* and others say, with relation to the Cure of a *Gutta Serena*, is meer Stuff and Nonsense: For, supposing the Cause in the Arteries as observed, this Gentleman advises *Cinnabar* Balls, which, no doubt, as *Cinnabar* is much heavier than the Blood, will add to its *Momentum*, or stronger Pulsation; and this is generally supposed as most proper to open Obstructions or Stoppages in the Blood-Vessels, Glands, &c. which is very true; but then if the Stoppage or Obstruction proceeds from the over-stretching or Dilatation of a Blood-Vessel, whether Artery or Vein; I say, let whether will be the Case, if we give *Cinnabar*, or the like, we run the Hazard of quite breaking the Coats of such Vessel, from whence many and great Evils might ensue. And here it may be seen of how momentous a Concern it is, rightly to judge of Things, lest we precipitately embark; and by administering Medicines of quite a different Tendency to the main Design of Cure, we render the Case almost deplorable, which before (by a skilful Man) might easily have been remedied.

Mr. *T---r*, the travelling *Oculist*, pretends to cure a *Gutta Serena* by *convulsing* the Eye, (as he is pleas'd to term the Operation;) but such Pretence is meerly so, and of *French Extraction*; for the Mountebanks in *France* can play forty comical Tricks upon the Eyes of their deluded Patients, without easing them of their Disorders. And really they have such an Apparatus of Machinery to perform the Farce withal, that an understanding Man would be confounded to see it; for, not one Instrument out of forty, they shew you, can be said to be of any real Use in performing Operations upon the Eye.

If a Horse move his Ears forward, and seem to keep them much in the same Posture, as a blind Horse will do when he is turned loose: I say, if a Horse do this when he is led in the

Mr. *Gibson's*
Account of
a *Gutta Se-*
rena errone-
ous.

An Obser-
vation on
the *Oculist's*
Practice.

Hand, (or *run before*, as the Dealer's Term is) and that he step a little higher than ordinary with his Feet, 'tis a shrewd Sign his Eyes are going to decay, or that he has some Inflammation either upon the outward or inward Coats of them; and tho' it be an easy Matter for Gentlemen to judge of the Soundness of the outward Parts of the Eye, yet it is very difficult for them to do so rightly of the inward, unless, as I have said before, they will give themselves the Trouble (or rather the Pleasure) of studying the Anatomy thereof, which may be learn'd in half a Day to Perfection; and then they would understand, whether the Distemper lay within the Reach of outward Application or no; and if it did not, that the Blood and Humours are then to be corrected by Bleeding, Rowelling, Purging, &c. and thereby they might save much Expence to themselves, as well as hinder the poor Creature from the torturing Application of corrosive Powders, Eye-Waters, &c. which ignorant Grooms and Farriers constantly apply, having no other Notion of the Distempers of this Organ of the Body, than as if they were all seated upon the outward Parts, such as the horny Coat, &c. and therefore perfectly destroy a Horse's Eyes, which were, before such Person meddled with them, curable: And therefore I insist upon it, that when the Disease is situate outwardly or upon the Outside of the Globe of the Eye, nothing is more proper or efficacious than the *Ointment for sore Eyes* before prescribed; nor need a Person use any Thing else outwardly, provided he has Patience to wait the necessary and due Time for Cure, which may be longer or shorter, according to the Urgency of the Symptoms: For as the Eye is a Part of the Body constantly imbrued with Moisture, and of Necessity often moved, I say these two Things greatly retard the Cure of their Distempers; for nothing hinders the uniting or healing of Wounds more than Moisture and Motion, as may be experimentally found by any who have Cuts or Sores upon the Eyes, Lips, Joints, &c.

Too much
Moisture
and Motion
hinder the
healing of
Wounds.

The Greeks
account 47
Distempers
of the Eyes.

Why
Horses do
not squint.

There are about forty seven Distempers reckon'd by the Greeks that affect human Eyes, but it is scarce worth while to mention them in this Place, because Brute Creatures are subject only to a few of them; and the Reason why Horses never have the Defect in their Eyes call'd *Strabismus* or squint eyed, is because their Eyes are a good Way asunder, and sufficiently parted or separated by the Prominency or bunching out of the Forehead. This, I say, keeps them in such a Situation, that they cannot cross one another, or, in other Words, Vision is not perform'd *au travers*, as the French call it.

It may not, perhaps, be amiss, if I say something of this unseemly Disorder of the Eye, altho' the Creature I treat mostly of in these Pages be not subject to it.

A *Strabismus*

A *Strabismus* or *Strabosity* is a Distortion of one of the Eyes, Squinting, or both in respect to one another, or a transverse Vision, commonly call'd Squinting. It proceeds from an unequal Action of the Muscles of the Eye. Infants easily contract this Distemper, sometimes by Neglect of the Nurseries who place the Cradle in an ill Posture towards the Window, or letting the Child wear peaked Caps which come over the Forehead. what it proceeds from.

Young Persons also fall into this Distemper, either by an ill Use of their Eyes, or by Contagion, to wit, by looking upon others troubled with the same Disorder. So that from hence it may be judg'd how improper it is to put out a Child to a squinting Nurse, or to let them play with Children who have this Defect; for they are almost sure to learn it, especially if they keep Company for any considerable Time with others who squint. And it is the same as to some other Habits, which are easily (and as it were without our Knowledge or Observance) acquired; more particularly the Defect of Speech call'd Stammering, which is often communicated from the Parent to the Child, from one Child to another, and from the Tutor to his Pupil. And when once this Defect is acquired, it is hard to be remov'd, because it requires Time and Perseverance, and is not done, but by accustoming one's self to a quite contrary Habit. For, as Stammering proceeds from a too hasty Pronunciation, or putting one's Words too close or crowded, it is (like all other Diseases of the Body) to be removed by its contrary, which is a slow and studied Utterance or Delivery of Speech. And so far I am satisfy'd that I could easily make any Person stammer, whom I kept Company with, provided they did not keep a good Guard upon themselves, and were apprized of the Trick before-hand.

The Defect of Stammering account- ed for, and its Cure.

Squinting may be easily cured, if the Person will only consent to wear a Mask over the Forehead, with two Pieces of Leather, or any Thing set to it in the Shape of Pipes or Tubes, about three or four Inches long, to look thro' in the Day-time, and in the Night to have the Eyes tied up with a Handkerchief: But then this Method must be pursued for some considerable Space of Time, otherwise there will be a Relapse, and according as the Defect has been of a longer or shorter Date, so does it require a Continuance of the Use of the Mask. Squinting cured.

I have sometimes ordered a very large Nose of Palteboard to be fix'd to something over the Forehead, which has entirely cured People of Squinting; for the main Business is to keep the Eyes parted sufficiently, so that they may not (as it were) cross one another, by the Right Eye's looking at an Object upon the Left, and the Left Eye upon one on the Right Hand: Therefore 'tis best not to look upon an Object even before you, when troubled with this Defect, but rather to turn the Head a little sideways; for the Nose must be an exceeding

big one to part the Eyes in two, if one look upon an Object right forward.

I shall now proceed to give my Opinion of Colds, or what the Farriers term *Mor-foundring*.

C H A P. XVIII.

Of Colds, or (what Farriers call) Mor-foundring.

Mor-
foundring
explain'd.

THE Word *Morfondre* in *French* signifies Cold upon Heat, and therefore our Farriers retain the Term, as Monsieur *Solleysell* made use of it first; and would have us understand by it, that it is melted Grease, or a Foundring in the Body, as *De Grey* has it. But is no other than this, to wit, when a Horse has been rid hard, and heated, and cools too suddenly, so that the Pores of his Hide are constricted or shut in a hasty Manner, insomuch that the *Materia Perspirabilis* is hinder'd from going off in the usual Course. Therefore as the Lungs and Brain of Animals are from their very Contexture, or Make, most susceptible of Impression, the Enemy is fixed sometimes upon one, sometimes upon the other of these so noble Parts of the Body.

Mr. *Gibson* says, that Cold, or *Morfoundring*, is a Stagnation of the Pores; but this Gentleman surely has not rightly understood what is meant by the Term. Indeed if he had said that cold is occasion'd by the perspirable Matter's (which should have gone off by the Pores of the Skin) stagnating in the Body, I should have agreed with him: But his next Remark makes sufficient Amends for this Mistake, when he says, "that Colds are often occasion'd thro' Neglect of Rubbing off the Sweat after hard Exercise, which strikes a Chills and Damp over the whole Body."

This is a very just Observation; and he who will not lend a helping Hand to rub a Horse clean and dry, and cloath him up after he has rid him hard, in my Thoughts, deserves to trudge on Foot rather than ever mount this useful Creature. But such unthinking and careless Men there are, and still I believe will be, who can ride a poor dumb Creature most unmercifully for twenty or thirty, nay, sometimes forty or fifty Miles together, without ever a Bait, and after giving him a genteel Lash or two over his Buttocks with their Whip, turn him over to the Care of a drunken lazy Fellow, who has no more Humanity than themselves, 'till such Time as they have Occasion to mount next Morning. And, it may be, the poor Horse undergoes almost the same Fate for two or three Days successively, by which, if he had not a good deal of Meat in him, as the Saying is, before he set out, 'tis ten to one but he falls into some dangerous Distemper afterwards. I must

I must not omit what the last mention'd Author says with relation to the Air affecting Horses with Colds. He tells us, "that sometimes many of the Symptoms will happen (I suppose he means Symptoms of a Cold) when the Air is too much rarified and thin; for by that Means its Pressure is not sufficient to force the Blood thro' the small Vessels of the Lungs, but will occasion a Stagnation there, and cause a Difficulty of Breathing, which will be accompanied with a Cough, &c."

Now any Man who has the least Notion of *Pneumaticks* or the Properties of the Air, may see that Mr. *Gibson* was ignorant of this Part of Natural Philosophy; for if he had not, he would have been quite of a different Opinion; because when the Air is most rarified or thin, it is then most elastic, or presses harder, or with more Weight, upon all Bodies. And this may be easily seen by any one, (who has not had the Opportunities of seeing Experiments in Philosophy) if a Bladder half filled with Wind, and tied, be held near the Fire, so as the Air within it may be rarified, how it will fill and stretch enough to burst out its Sides; or if he only observes the Working of the Barometer, (or Quick-Silver in the Weather-Glass) he will find that when the Air is thinnest, (as Mr. *Gibson* calls it,) it then approaches the nearest to what we may term pure Air, and that therefore it is the more springy or elastic; and by its perpendicular Pressure at such Times, it forces up the Mercury in the Tube, to the greatest Height: So that in the Main, we have a greater Pressure of Air upon the Surface of our Bodies, when the Air is thin, and not agitated by Winds, &c. than we can possibly have otherwise.

Mr. *Gibson's*
Account of
Colds erroneous.

Furthermore, I say, that the Air within our Bodies, (and no doubt but there is a considerable Portion,) bears an Equality with the Spring of the Air without; and when dirty foul Weather is coming on, the Air within our Blood-Vessels must become less elastick, whereby the Blood moves more Slow and Languid; and it is then we feel those wandering Pains of the Rheumatism, &c. so often complained of by old People of Fourscore, whose Bodies are by constant Observation, become good Weather-Glasses. But to return.

I have said that a Cold is Perspiration obstructed, and that it mostly affects the Brain or Lungs; for Horses are not so much subject to Disorders of the Nerves which occasion Coughing, as Man. yet they often have a Stomach-Cough, or, I would say, a Disorder at the Stomach, which makes them Cough much, and this mostly proceeds from Worms, Bots, &c. lodged there, or a little lower in the Intestines or Guts.

A Stomach-Cough.

The Cure of a Stomach-Cough consists, in giving the Horse such Things as destroy Worms; these are *Mercurius Dulcis*, *Ethiops Mineral*, or the like; but if you give the first, let it be

The Cure.

about a Drachm in Powder for a Dose, mixed in a little Paste or rather some of my Cordial Ball in an Evening; and the next Morning give him a Purge, of an Ounce of Aloes; an Ounce of Cream of Tartar; and half an Ounce of Senna in Powder; make this into two Balls with Syrup of Buckthorn, and give it the Horse in the common Way. The *Mercurius Dulcis* and Purge should be given once a Week for three Turns, and I think that may be sufficient; but mind you never give a Horse cold Water when he purges, for those who do are meer *Ignoramus's*, and cannot give any good Reason for their Proceedings; only they'll tell you perhaps every Horse will not drink warm Water, though I think there are few, but will (with a little Oatmeal,) drink sufficiently: Yet if they still refuse, never fear letting them fast, rather than oblige them with cold Water, for Reasons too plain to set down more than once; and I believe I have already made mention of them, under the Discourse upon Purging, Bleeding, &c.

Æthiops Mineral is a very safe Medicine for the Worms, either in Man or Beast, but must be continued for some Time, at least a Fortnight; half an Ounce a Day in scalded Bran, if the Horse will eat it, if not, give it him in his Oats after they are sprinkled with Water.

There is not any occasion for Purging after the *Æthiops*, though there is after the *Mercurius Dulcis*; for if you did not do this, you would in all likelihood raise a Salivation; for Horses easilier salivate than Men, provided the Dose is in proportion, by reason of the pendent Situation of the Head.

After the Use of Worm-Medicines, let the Horse have some Stomachic-Drench given him, such as the following.

The Cordial
Stomach-
Drench.

Take Turmeric, one Ounce; Saffron, one Drachm; Long Pepper, two Drachms; Anniseed, one Ounce; powder all these, and mix 'em in half a Pound of Treacle, and a Quart of warm Ale, for a Dose; which may be used thrice a Week, for a Fortnight.

Coughs fre-
quently Epi-
demical.

It is very frequent for Coughs to be so epidemical or universal, that few Men or Horses miss having their Share, more or less; and this is owing to some peculiar Disposition of the Air, which breeds such Distempers; though I must frankly confess I am ignorant of the true Cause; that is, whether it be occasioned from Insects floating about in the Air, and carried from Place to Place by the Winds, (as a late Learned Author undertakes to prove;) or it is brought about by the Air's being more or less impregnated with Nitrous Particles. I say, this is Matter of Controversy; yet if we can but find proper Remedies for all Sorts of Coughs or Colds, it is, one would think, abundantly sufficient, without entring into many frivolous and idle Disputes, of which there is no end.

How to
know whe-
ther a Cold
be newly
taken.

If you would know whether a Horse has newly taken Cold, feel between his Jaws, and if there be no Swelling of the Glands,

or Kernels of the Throat, you may suppose it has not been long upon him; likewise if he rattle in his Breathing, it is a Sign the Distemper is in its first Stage, or if (when he drinks) the Water comes more than common through his Nostrils.

Bleeding is most proper in the Beginning of almost all Colds, The Cure. seeing they are more or less attended with a Fever; for as the obstructed perspirable Matter causes a Commotion in the Blood, this Operation must certainly be very seasonable, if (as I have said) it be performed in the Beginning of the Distemper, before Nature has pointed out some other Way to discharge the Enemy.

Moderate Exercise next takes Place, which, along with warm Water and Oatmeal, and a few of my Cordial Balls, (as prescribed in my Notes upon the *Packet Farrier*) is, without any other Helps, the best Method of Cure.

The Balls should be given in the Quantity of two Ounces every Morning, when you take the Horse out upon his Exercise till such Time as the Disease be quite conquered; though I must not omit advising the Reader, that warm Cloathing, especially about the Head and Throat, very much contributes towards bringing the Distemper to a Crisis or a Head, which may be known from the Discharge by the Nostrils: For a Horse differs from a Man in this, that they do not cough up the Pus or Corruption by the Mouth, but throw it out all through the Nostrils, and often make sad nasty work in the Mangers, so that it is proper to fill the Manger with Straw; and when you feed a Horse that has a Running at his Nose, wipe it clean as well as his Manger; neither should he have much Hay given him at once, for his Breathing (at this Time) will taint it, and bring on a Sickness at his Stomach, if he feeds upon it any Time together.

The Hay should be exceedingly well shaken from Dust, &c. and sprinkled with Spring or River Water a little; for I have found by Experience, that dry Hay prolongs this Disorder, and hinders the Cold from Breaking, as it is called, so soon as it would do otherwise.

Scalded Bran is also proper in most Colds, and this must be given (I mean put into the Manger) hot: for the Steam of it does not a little conduce towards a Cure, by setting the Nose a running, from which Symptom a Horse finds the first Ease-ment, for till then he will be dull and heavysom, and hang his Head into his Manger, and sometimes run at his Eyes; which last is a sure Sign the offending Matter affects the Brain.

As it is very likely that a Horse which runs at the Nose, must swallow with his Oats or Hay, a good deal of the Pus or corrupted Matter, it may be adviseable (after the Distemper is gone off) to administer a Purge. The following may be taken as a general one in this Case.

Take

A Purge after a Cold.

Take Aloes Caballine, commonly call'd Horse-Aloes, one Ounce; of Socotrine Aloes, half an Ounce; Glauber's Salt, one Ounce; Oil of Anniseed, two Drachms; Syrrup of Saffron, one Ounce; beat these well together, and if the Mass be soft, work into it a little Flour of Brimstone, and give it the Horse in two Balls.

Bleeding mostly necessary.

This should be repeated every ten Days, as the Horse is able to bear it; though I think two of them sufficient, unless he is very full of Flesh. And as I have ordered him to be bled in the first Stage of this Distemper, I must here again repeat the same Directions, to remind the Reader of such necessary Evacuation; and that it be done to some Purpose, that is, not a Quart at a Time, but two or three Quarts, or rather more if the Horse can bear the Loss of so much; and there are few but will, seeing they have so great a Quantity in the Body as before observed; though if a good Quantity be taken away at two or three Operations, suppose every Day once; two Quarts the first Day, three Pints the second, and a Quart the third, it is best of all.

De Grey's Method for a Cold in the Head.

There is one Thing ordered by De Grey, which he tells us he had from a famous Marshal or French Farrier, and that he holds it the best Thing which can be prescribed, (I suppose he means in the height of the Distemper;) it is this.

“ Take a small Quantity of frest Butter, and Brimstone made into a fine Powder; work them together well, till they become of a deep yellow Colour; then take two long Goose Feathers, and anoint them with the Ointment to the very Quills, on either Side; which done, roll them in more Powder of Brimstone, and so put them up each Nostril one; and at the But-end of the Quills put a strong Packthread, which must be fastened over the Horse's Poll, like the Headstall of a Bridle; and then ride him up and down moderately, for the Space of an Hour or longer, and it will provoke him to snort or snuffle forth off his Nose and Head much of the congealed Filth; then tie him to the Rack an Hour, after which draw forth the Feathers; keep him warm, and give him Mash and white-Water, for four or five Days.”

Now for my Part, notwithstanding the Encomiums De Grey is pleased to pass upon this Method, I think the Butter and Brimstone are ridiculous; for there is not any Thing in either of them, which provokes the Horse to snort or sneeze; therefore we are to attribute the Good (if any) it does, wholly to the Feathers, which, by tickling and irritating the Olfactory or Smelling Nerves spread about in the Nostrils, cause Sneezing: Yet in my Thoughts, there are several Things may be thought of, under the Tribe or Class of Sternutatories or Sneezing Powders, that will answer the End better, and with much less Uneasiness than the Goose Quills.

How

How a Medicine occasions the Convulsive Motion, termed Sneezing or Snorting, in Brutes as well as Human Creatures, is not at all difficult to understand: For the Fibres and Membranes within-side the Nostrils are extremely sensible: Whatsoever therefore stimulates them, makes them Contract, and thereby pull those Parts they have any Communication with, which by Degrees, brings on that general Convulsive Shake, that throws off the irritating Matter.

Every one's own Experience demonstrates, and best explains to himself, how this is produced; and likewise manifests the great Influences which may be communicated over the whole Body, by the Communication of Fibres, from an almost unheaded Sensation upon the least Part.

The Salutary Effects of this forcible Concussion of the whole Body, are very considerable. There are many Glands or Kernels about the Head, destined for the Separation of very viscid and mucous or slimy Substances; by which Means many Sinus's or Cavities, of some Service in the Animal Oeconomy, are frequently so stuffed with such Matter, as not to give that Room to some of the Vessels, as it is their Office to do; whereby the Circulating Fluid in some Parts makes them too turgid or full, which upon many Accounts will occasion uneasy Sensations, Pains, Giddiness, and other Distempers frequently experienced in the Head.

By a particular Conformation, the Nose receives and Discharges many such superfluous Viscidities or Foulnesses. Therefore a Stimulus, from what we call Sternutatories, or commonly Snuff, will provoke those Parts to encrease such Discharges, whereby a troublesome Load of Matter is drawn off, and the Head rendered brisk and lightsome.

But, besides the Benefit the Head receives from such a Discharge, the whole Constitution or Frame of the Body is likewise so sensibly affected, that in many Cases it is of Use as an Exercise; and there is no Motion whatsoever, even not that of Vomiting, (though Horses seldom vomit,) which so suddenly and forcibly shakes the whole Nervous System. So that in all Obstructions of the finer Passages, particularly of the Nervous Fluid, whatsoever produces Sneezing must be of great and singular Advantage. And common Experience and Practice confirms this in many Instances of Paralytick, Apoplectick, and Lethargick Cases; where this Motion rouses, and enlivens as it were, the sluggish Spirits, and by shaking the most remote Fibres, assists their proper Juices in Circulation, which before seemed to stagnate, or not to irritate the Fibres enough, to maintain the natural Elasticity: And of such great Efficacy is this Convulsive Motion, that it is sometimes procured (in Human Bodies) on purpose to forward Delivery, and with good Success.

How

The Folly of
accustoming
one's self
to taking
Snuff.

How far the Custom of taking Snuff is serviceable or detrimental, is not directly to my present Purpose to determine; but thus far it may not be amiss to inform those who comply too much with it as a Fashion, that they thereby put it out of their Power to receive any Benefit from such Things as a Medicine, whensoever there may be Occasion for such Helps: For continually stimulating those Parts with hot pungent Snuffs, makes them by Degrees grow as it were callous or hard and horny, and much less sensible, which all Snuff-taken experience; being not provoked to Sneezing, if they take ever so much, when one Pinch of the same would immediately operate upon a Stranger to it.

There is another Inconveniency also from this Practice, and that is spoiling the Appetite; for most of the common Snuffs are Tobacco of one kind or other, whereof some will pass down the Throat into the Stomach, especially in those who take much, whence it destroys their natural Appetite, as many of them confess to find by Experience, altho' they cannot be prevail'd upon to leave it off. But for such who imagine continual taking Snuff to be necessary or beneficial for them, many Things in liquid Forms would much more properly answer their Intention; such as *Sal Volatile Oleosum*, diluted with something proper, as *Spirit of Lavender*, or the like, where it is of itself too strong. But it is to be fear'd no salutary Regard can obtain such Reformation, unless that *Idol Fashion* would vouchsafe a Sanction thereto. Now to return.

A Cold in
the Head.

If a Horse has a Cold in his Head, I think it may most easily be known from the rattling Noise he makes in Breathing; and it is my Opinion, that Patience and warm Cloathing are very requisite in this Case, by reason the Matter of the Distemper requires Time to assemble or gather together in such Quantity, as that it may, with the greatest Ease to Nature, be discharged thro' the Nose. But we are such uneasy Mortals, that we have not Patience to wait Nature's Leisure, but rather force her beyond her beneficent Designs; insomuch that the Disorder is often protracted, to the no small Danger of the Sick.

The Cure.

I say then, let the Horse's Body and Head be well cover'd with Cloths for a considerable Time, and when his Nose begins to discharge ever so little, it is proper to blow thro' a Quill up his Nostrils some of the following Sneezing-Powder, which may be repeated twice or thrice a Day, 'till the Running gradually cease; all which Time let him have warm Water and Oatmeal, with Mashs and sprinkled Hay, as before advised. The Powder is this.

The Sneezing
Powder
for Colds in
the Head.

Take of the Leaves of the Herb *Asara Bacca* dried, half an Ounce; white Hellebore, one Drachm, Powder them well, and keep them in a Bottle close stopp'd, for Use.

There

There are a Number of *Recipe's* for Colds, both in *Solleysell*, *Blundeville*, *De Grey*, *Mr. Markham*, and *Mr. Gibson*; but as I have look'd them over, I think they are not any of them worth transcribing, or giving my Opinion upon: For *Bleeding*, *Exercise*, *good Dressing*, *warm Cloathing*, *proper Feeding*, as before spoken of, will, along with the Use of my *Cordial Ball* hereafter prescribed, perform a Cure; unless the Cough be a Consumptive one, or that the Glandules or Kernels, call'd *Pituitary* or *Phlegmy*, situated about the upper Part of the Jaws and Throat, be much infected. Here follows the *Cordial Ball*.

The true Way of curing Colds.

Take *Anniseed*, *Caraway Seed*, and greater *Cardamoms* finely powder'd, each one Ounce; *Flower of Brimstone*, two Ounces; *Turmerick* in fine Powder, one Ounce and a half; *Saffron*, two Drachms; *Sugar-Candy*, four Ounces; *Spanish Juice* dissolved in *Hyssop-Water*, (or for want of such, *Rain-Water* will do,) two Ounces; *Oil of Anniseed*, half an Ounce; *Liquorice-Powder*, one Ounce and half; *Wheat-Flour*, a sufficient Quantity to make it up into a stiff Paste by beating all the Ingredients well in a Mortar.

The Cordial Ball for Colds.

I have not made any material Alteration in this *Cordial Ball* from my Prescription in the *Pocket-Farrier*, seeing I could not do it to Advantage; only when the Mass grows dry by keeping, it may be proper to beat it up again with some sweet *Florence Oil*, which will keep it moist a long Time together.

I need not enter upon any Encomium upon the Properties or Effects of this *Cordial Ball*, seeing I have done it sufficiently in my Notes upon *Burdon*; only this I must say farther in Favour of it, to wit, that it contains all the proper Ingredients fit for a Cordial Drench, as the Farriers term it; so that you have only to take the Bigness of a Hen's Egg of it, and dissolve it in a Pint of White-wine, or for want of that, a Quart of Beer, and give it the Horse, as Occasion requires.

Before I close this Chapter, I shall only take Notice of a *Mr. Gibson's* Prescription of *Mr. Gibson's*, in his Book of *Farriery*, Page 90, to wit, that "if you make a Decoction of red *Rose Leaves*, *Pomegranate Bark*, and *Diascordium*, and syringe it up the Nostrils pretty often, it will hinder its turning to the Glanders; and that *Honey of Roses* will do the same."

Decoction to prevent Running at the Nose turning to the Glanders, cured.

Now I am satisfied, neither of these will be of any real Service more than warm Water, nay, perhaps they may not be so good; for the Intention of the Prescription is as an Astringent, so that it will lock up and stop the proper Discharge from the Glands about the Throat, that is, if the Syringe throw it up so far; but I am of Opinion it can scarcely be injected so as to reach the Cause of the Distemper, therefore it favours more of Sound than Sense.

C H A P.

C H A P. XIX.

Of Chest-Foundering, and broken-winded Horses.

Chest-
foundering,
purfive, or
Broken-
winded and
Consump-
tive Horses.

THE Word *Fondre* in *French* signifies to melt or liquify, and therefore the ancient Farriers would have us believe that the Horse's Grease is molten when he is Chest-founder'd; but this Term is very dark and abstruse, forasmuch as a Person cannot form any true Idea of the Distemper from it.

Most Authors agree in this, to wit, that Chest-foundering proceeds from too hard Labour whereby the Horse becomes surfeited, so that in the main it is no more than a severe Cold, and therefore to be managed accordingly.

Signs of
Chest-
foundering.

The Signs of this Distemper are a staring Coat, and Heaving of the Flanks more than common. Mr. *Gibson* mentions Starting with Pain as often as he offers to move, to be one of the Symptoms of Chest-foundering; but I imagine that Author had form'd such a Notion of this Disorder as might lead him into the Mistake, for I could never observe such Starting with Pain, &c. more peculiar to the Chest-founder'd Horse than any other.

The Cure.

In the first Place, I recommend Bleeding according to a Horse's Strength, Age, &c. to ease his Difficulty of Breathing; but as to opening the Flank Veins, or those on the Inside of the Thigh, to make Revulsion, (as Mr. *Gibson* advises,) I don't believe there is much in it, for Reasons before assign'd under the Term *Revulsion*.

Using a
Horse too
long to
warm Wa-
ter, an ill
Custom.

As Chest-founder'd Horses are mostly Costive, and of a hot and dry Habit, soft Food is most proper, I mean such as will give the Stomach least Trouble (if I may be allow'd the Expression) to digest it; such is *boil'd Barley*, *Oats ground rough*, *warm Water* with a good deal of *Oatmeal* in it, and the like. What I mean by warm Water, is a pretty Quantity of cold Water, to which you may add a little hot Water, so as to make it Milk-warm; for if a Horse be used to Water more than just warm, he will not drink any cold for some considerable Time afterwards.

An excellent
Clyster.

I cannot see any Occasion for Clysters, unless the Horse is (according to the Farriers Term) burnt up in his Body; if so, indeed, he may have the following.

Take Pellitory of the Wall, and Mallow Leaves, each three Handfuls; Fenugreek-Seed bruised, and Anniseed, each one Ounce. Boil these well in a Gallon of Water to three Quarts; then add of the Electuary call'd Caryocostinum, two Ounces, (which you buy for about four Pence per Ounce,) and three Ounces of common Oil; for 'tis not material what Oil it be that is used in Clysters,

Clysters, seeing the Part into which they are injected will make no Distinction between Florence-Oil and common Plaister-Oil.

If you add a little common Salt, it will cause the Clyster to operate sooner, by the pungent Particles irritating the inner Membranes of the *Rectum* or Straight-Gut, and promoting that vermicular Motion of the Intestines call'd *Peristaltick*.

I cannot prescribe any Thing better than the *Cordial Ball* to be used thro' all the Stages of this Distemper, which will, with the Method above, good clean Hay, warm Cloathing, and lying well litter'd up in a large Stall, with the Help of moderate Exercise (for some considerable Time) restore the Horse to Health and Vigour.

There is very often a grand Mistake among Farriers, to wit, that when the Horse goes with much Pain and Uneasiness about his Shoulders and fore Parts, they conclude him founderd in his Body; whereas 'tis ten to one, the Cause of such painful Movement lies in the Hoof, and is what these Fellows call *Hoof-ffoundering*; tho' the Word *Hoof-ffoundering* is Nonsense if render'd into our Language, which would be *Hoof-molten*; and that there is no such Quantity of Grease in a Horse's Hoof whereby it can be molten by hard Exercise, so as to deserve the Name of *Hoof-founder*, I need not be at the Pains to explain. Therefore I shall shew my Notions of what the Farriers term *Hoof-founder*, when I come to treat of the Diseases of the Hoof.

A grand Mistake among Farriers.

Broken Wind and *Purpiveness* in Horses is what in human Creatures we call *Asthmatick* and *Pthifick*.

Broken Wind and Purpiveness. The Cause.

The Cause of Purpiveness and broken Wind proceeds from Surfeiting, hard Exercise upon a full Belly, Riding a Horse into Water when he is hot and sweats; and lastly from obstinate Colds ill cured.

I need not be tedious in enumerating the Signs or Symptoms of Purpiveness and broken Wind, by reason every one may easily perceive the Disorder, if a Horse be only trotted sharply to and fro; for it is a frequent, difficult and short Respiration, join'd with a Kind of hissing or whistling Sound, and a Cough, especially after drinking cold Water. And Horses are, in this Particular, more liable to Purpiveness than Men are to Asthma's, because their prone Posture occasions the Guts to press continually against the *Diaphragm* or Midriff, which of Consequence must hinder the Lungs from expanding themselves, or in other Words, they are expanded or stretch'd with more Difficulty than in Man, who is in a perpendicular or upright Posture. And that this is the Case, those who are Asthmatick find by Experience, that when they go to Bed they breathe with greater Trouble, and are obliged to lie high with the Head, that the Bowels may not press the Midriff against the Lungs, and hinder their Expansion.

The Signs.

I cannot

A difficult
Matter to
distinguish
between
a Cold
and broken
Wind.

I cannot say, but it is something difficult for a Person (not skill'd in Distempers) to distinguish between a purfive Horse, and one which has newly taken Cold: But if he only take Notice, that upon Motion there will be a hissing whistling Sound, and greater Heaving of the Flanks than in common Colds, he will easily know the Difference. Besides, the Cough does not sound so deep in Purfiveness, but on the contrary is a short tickling one, as if it were seated at the upper Part of the *Larynx* or Wind-pipe; tho' indeed it is seated mostly in the Lungs, where there are watry *Tubercles* or little Bladders, and often flatulent or windy Tumours.

A History
from *De*
Grey.

De Grey tells us of a young Horse he had under his Care in a Consumption of the Flesh, (as he calls it,) which had been occasion'd, as he believed, from hard Riding after a Pack of Hounds, and afterwards suffering him to go up to the Saddle-Skirts in Water.

In fine, the Case baffled poor *De Grey*; but he open'd the Horse when dead, and told his Owner,* that the Man who had the Nag in teaching to amble had given him the Distemper, by riding him when hot into cold Water; for that the Horse being very full of Flesh, the Fat about his Belly, Brisket, Ribs, and Sides, was so caked and harden'd that it never could be dissolved; therefore he by slow Degrees dwindled off his Flesh, and at last died.

Now this Account may to some People seem probable enough; but I fear *De Grey* tells the Story too much in Favour of his own Abilities, when he would have us believe him almost a Conjuror, in guessing that the Ambler had rid the Horse into cold Water in the Circumstances aforesaid; nor did this *Farrier* know perhaps, that there is a Difference between *Adeps* and *Pinguedo*; the first signifying the soft fatty Substance, and the latter what we call Suet, or the harder part of the Fat. Therefore in the Case *De Grey* cites, the soft fatty Substance was all consumed, (as it really is in all Consumptive Cases,) and nothing was left but the *Pinguedo* or Suet, which when a Horse dies lean, is generally of a yellowish Colour. I say, this made *De Grey* form the whimsical Notion of the Horse's Fat being frozen or congealed to such a Degree that the same never dissolved again.

The Cure.

I am pretty well convinced that more Stir and Noise is made about *Arcanums* and *Nosstrums* or Secrets for the Cure of Broken-Winded and Purfive Horses, than there is any real Foundation for; yet there is no manner of Dispute but such Horses may, by good careful Management, be made of better Service than otherwise they would: For Instance let the Water you give them be, once every other Day, impregnated with half an Ounce of Salt Petre, and two Drachms of *Sal Armoniac*, which will operate powerfully by Urine, and whatsoever does that,

that, most certainly relieves *Purpiveness* in Horses as well as *Asthma's* in Men. The following is sometimes used, and may do for a while, till you can jockey your Neighbour with a Broken-winded Horse in lieu of a sound one.

Take new Milk, one Quart; Florence Oil, mixed with the Yolks of Eggs, four Ounces; give him this Blood-warm, and let his Hay be well shaken from Dust, and sprinkled with Water moderately, because if it is done overmuch, he will take a Distaste at it, but if it be done sparingly, it adds to the Sweetness and Flavour of it.

A Mixture
for Purpive-
ness, &c.

A Horse that is Purpive or Broken-Winded should eat what is of good Nourishment, and lies in a little Room; that is, he should have more Corn than Hay: For when a Horse is obliged to fill his Belly with Hay, he must drink a deal of Water to dilute it, and make it fit for Digestion; this presses harder upon the Lungs, &c. and adds to the Grievance. Therefore let such Horses have much Corn, and little Hay always sprinkled, if you expect them to perform a Journey, and then their Lungs will have Room to expand and dilate themselves sufficiently.

De Grey tells a merry Story of a Horse cured of Purpiveness, which is as follows, "a certain Groom (no doubt a wise one) who had a Broken-Winded Horse under his Care, kept him from drinking for two or three Days, giving him all that Time as much Hay and other Provender as he would eat; then he leaped upon his Back and rode him to Water, where he suffered him to drink his Fill; then he clapped Spurs to him and galloped full speed, till the poor Creature fell down for want of Breath, and lay for some time as if he was dead; as soon as he recovered Wind, the Groom gave him more Water and gallop'd him a second time till he fell, and so a third; (for no Number I suppose but an odd one would do with this Groom;) well, when the Horse had recovered his Wind a little, he fell to Coughing very much, (as well he might,) and by the violence of the Shake, cast out of his Wind-Pipe and Mouth, a Lump of congealed Phlegmatick Stuff of a good bigness, after which the Gelding was freed from the Distemper."

De Grey's
Cure for
Purpiveness
or Broken-
Wind.

This is what the last mention'd Author relates from a worthy honest *Farrier*, who had it from the very Groom himself who performed the Cure; but in my Opinion, the Story has need of better Attestation; though if I had seen the Thing done myself, I should never advise any one to put it in Practice.

As I have said before, a spare Diet and that of good Nourishment is most proper for short, thick, or broken-winded Horses; and Grass is best of all, especially such as does not make them grow big in the Belly, as is the Nature of some

Kinds of coarse Benty Pastures. So that by Care and Management, a Person may make a Horse perform tolerably well though he is Thick-Winded; but if he is not otherwise a valuable one, I think it is a great Folly to keep tampering with him, for indeed there is no end on't; therefore it is in vain for me to think of any Method of Cure, otherwise than as before set down, seeing I have no Faith in any of the long *Farrago* of Recipes contrived for such Purposes; and whoever lays out his Money upon *the certain and infallible Cure for Broken-Winded Horses*, had much better keep it in his Pocket, towards Purchasing another Horse, since that in present Possession is not likely to do him much Service. Yet I am apprehensive, that all I can say against giving Medicines for the Cure of Broken-Winded Horses, will not have its due Weight; because I know there are many who give Credit to every Thing they see writ down, provided there is only *Probatum est* at the Close of the Receipt. But the Family of the *Wrong Heads* is, and no doubt will be, a very numerous one, while the World endures; and there will be still more *Fools* than *Philosophers*, though there were twenty greater Men than Sir *Isaac Newton*, yet in Being, to instruct them.

Mr. Gibson's
Balls for
Broken-
Winded
Horses,

Mr. Gibson orders a Ball made with *Gum Galbanum Ammoniacum*, *Burdock-Root*, *Flowers of Benjamin*, and *Sweet Oil*, to be given four Ounces a Day at twice; and I cannot say but the Composition is a good one, though there is not in the *Burdock-Root* much of a Pectoral Quality: But according to my Thoughts, this Ball would stand in five or six Shillings a Day, at the Rate *Galbanum*, &c. now sell. Therefore, unless the Horse be a valuable one, I believe no Person will bestow so much Money upon him when Purse, especially when there is so little Hopes of a Cure, according to our best Accounts and Observations.

I shall now proceed to a Description of the *Glanders*, which the *Farriers* term *Mourning of the Chine*.

C H A P. XX.

Of the Glanders or Mourning of the Chine.

The Signs.

I Cannot describe the *Glanders* better than Mr. Gibson has done, to wit, "that it is a Flux or Running of corrupt Matter from the Nose of a Horse, which Matter is of different Colours; as White, Yellow, Green, or Black, according to the Degree of Malignity, or according as the Distemper has been of long or short continuance."

Our Ancient *Farriers* treat very oddly of this Disease, imagining the Seat of it sometimes in the Lungs, at other times

times in the Brain, &c. and particularly *De Grey* tells us, " that before a Farrier can perfectly Cure the *Glanders*, he " must free the Horse from manifold and sundry Diseases, " which accompany them; such as Consumption of the Flesh " and Lungs, Grievs and Aches in the Head, Inflammation " under the Jowl, Diseases in the Liver, Purpiveness, Hide- " bound, Dropsy, Swelled Legs, &c.

Now out of all these, I know but one inseparable Sign of the *Glanders*, to wit, Inflammation or Swelling of the *Glands* about the Throat, and behind the Ears. And as to what *Monfieur Solleyfell*, *Blundeville*, and others, write about the *Mourning of the Chine* or Consumption of the Brain and Spinal Marrow, which runs all throw the *Vertebrae* or Bones of the Neck, Back, Loins, &c. it is a pack of Nonsense; though indeed we have a Distemper in Human Bodies which goes by the name of *Tubes Dorsalis*, and implies a Wasting or Consumption of the Spinal Marrow: But I believe this Term was mostly in Use when the Knowledge of Physick was in its Infancy; for what the Ancients supposed to be a Wasting of the Marrow in the Back, was nothing more than a *Gonorrhæa Simplex* or *Simple Gon*, without any Virulency, or Infectious Quality in the Running; and the Pain in this Case mostly affecting the Loins, they therefore judged the Marrow to be wasting: But to return to the *Glanders* in Horses.

I take *Mr. Snape's* Account of the *Glanders* not to be very Defective; only I cannot agree with him in one Thing, that is, in this Distemper's being Contagious or Infectious; for he might as well say that we catch Colds, Consumptions, &c. by Infection; no, what made him as well as others believe this Disease of an Infectious Nature, was the epidemical Constitution of the Air, which, more at some particular Times than others (as we find by daily Experience,) subjects Men, Horses, &c. to Colds or Rheumy Distillations upon the Brain, Lungs, *Fauces* or Jaws, and so forth: and whensoever this happens, they do not all begin at one Time, but one after another, according as the Blood and Humours are in a State to receive the Infection from the inspired Air; and really in all Colds, one should guard as much as possible against the *Glanders* or Induration and hardening of the *Glands* or *Kernels* about the Throat; and this may be done in the following Manner.

As the *Glanders* seems to be an Affection of the *Glands* of The Cure, the Throat, whether from catching Cold, unwholsome Food, which renders the Blood poor and viscid, or from the bad Constitution of the Air, producing such Disorders; I say let it be from any of these Causes, the Horse must be managed in much the same Way: But the Business is to take the Distemper in its first Stage, and nip it in the Bud; for after the Matter or Running has acquired a malignant and corrosive Quality,

lity, whereby the soft spongy Bones in the Nose are become *Carious* or rotten; (which may be known from the ill Colour, Smell, &c.) when this is the Case, it is past Remedy, or at least the Remedy is worse than the Disease.

Diet for a
Horse in the
Glanders.

In the first Place the Horse is to be kept very warm and fed with clean good Food; as sweet well shaked Hay, Oats ground, and some of the rougher Seeds taken out, Mashies, and the like, with a continued Use of warm-Water and Oatmeal for some Time; and of the latter, to wit, Oat-meal, be not too sparing; for the *Glanders* are occasioned oftentimes through Poverty, and Lowness of Flesh. Therefore, *as Diseases are cured by their Contraries*, what affords good wholesome Nourishment, and adds Spirits to the Blood, must undoubtedly be of Service in this Case.

Bleeding
proper in the
Beginning of
the Distem-
per.

Secondly, Bleeding is proper in the Beginning of the Distemper, that is, before the Humours have too far affected the *Glands* or *Kernels* about the upper Part of the Wind-Pipe; though indeed many Horses are affected with Swellings of the *Glands* of the Throat, while they are at Grass, especially in Winter, which continues long upon 'em before we see them, or any proper Care is taken, insomuch that they indurate or harden, and would turn out like a boiled Potatoe; and when thus hardened, they are unfit to perform Secretion. But here it may not be amiss to shew the Reader the Form or Structure of a *Gland*, and then he may be the better qualified to judge of Glandulous Disorders, which are really very numerous; and 'tis great pity more Pains is not taken to set their Doctrine in a true Light; though of late Years we are better acquainted with their Structure and Mechanism, from perusing the Works of the truly ingenious Dr. Keil upon the Subject.

A Gland
described.

The Ancients believed the *Glands* were as so many Cisterns which contained certain Liquors, by which the Blood being fermented, threw off the Humours refined by the Excretory or discharging Ducts or Pipes: But as these Ferments must necessarily mix with the Blood, so they must be exhausted, and carried off by the Blood into the Veins; and because all the Liquors in the Body are separated from the Blood, there must be another Ferment to separate more: But this second Ferment is as liable to the same Fate as the first; and therefore there must be an infinite Series of Ferments in the Body; which is absurd to imagine.

If it should be objected that the Ferments are not carried off with the Blood, they must be stopped by the Structure of the *Glands*; but then there will be a Secretion without a Ferment, which is now the common Opinion.

Some think the *Glands* are *Tubes* whose Orifices differing in Figure, admit only Bodies of similar Figures to pass through them; But this (though a plausible Conjecture) is demonstrably false;

false; for besides that Liquors are susceptible of all Figures, and that Bodies of any Figure and a lesser Diameter than that of the *Gland* will pass through; and that even a Body of a similar Figure, and equal Diameter with that of the Orifice of the Glands, may be presented innumerable Ways, and not be able to pass through, whilst there is only one Way it can pass.

I say that all the Vessels in an Animal Body, are Conical or Cylindrical, and consequently there is no difference in the Figure of their Orifices; for, the Pressure of a Fluid being always perpendicular upon the Sides of the Vessel that contains it, and equal at equal Heights of the Fluid, if the Sides are soft and yielding they must be equally distended or stretched out; that is to say, a Section perpendicular to the Axis of the Vessel must be a Circle, and consequently the Vessel be either Cylindrical or Conical; and this is agreeable to the Accounts of the nicest Anatomists, who tell us, that a *Gland* is nothing else but a Convolution (or winding together in a Bundle) of small Arteries, whose last Branches are Cylindrical, or, which is the same Thing, part of an infinitely long Cone. A *Gland* therefore being nothing else but a Branch of an Artery, whose farthest Extremity becomes the Excretory Duct or discharging Pipe of the *Gland*, it is next to be known how such a Structure can separate from the Blood only some of its Parts, and how different *Glands* may separate different Parts of the Blood.

All the Vessels in the Body are Conical or Cylindrical.

If such a Fluid then is to be drawn off, as consists of the smallest Particles of the Blood, let that Orifice of the *Gland* which is inserted into the Artery, of which it is a Branch, be so small as to admit only the smallest Particles of the Blood, then these, and these only will enter this *Gland*, and the Fluid, which passes out at the other Extremity of the Tube or the Excretory Duct, must be such as is required.

If the Particles of the Blood which are of the next Size or Magnitude, are required to be separated, let the Orifice of the *Gland* be so big as to receive those second Particles, but small enough to exclude all bigger Particles; then these second Particles, together with the first and smallest, will enter the *Gland*: But because the Liquor to be secured or separated is to consist only of the second Sort of Particles, that is, the second Sort of Particles only are to flow out at the Extremity of the Tube or Excretory Duct; therefore we are to suppose that this *Gland* (which is only the Branch of an Artery, and differs in nothing from a common Artery but in the narrowness of its Channel,) has Branches which are big enough to receive the smallest Particles only, and carry them off into the Veins; so that as both Sorts of Particles move together along the *Gland*, the smallest Particles will pass off through its Branches, and a Fluid consisting chiefly of the second Sort of Particles, will arrive at the Excretory Duct, or Extremity of the convoluted Tube.

Thus the Number of Branches may be so great as to draw off most of the smallest Particles before the second Sort of Particles arrive at the Excretory Duct; so that the Liquor to be secern'd or separated, may consist of both these Sorts of Particles mixed together in any Proportion, according to the Number of Branches.

If a Fluid consisting of a third Sort of Particles larger than any of the former, is to be secern'd, the Orifice of the Gland must be just big enough to admit such Particles; and none bigger; and the Branches of the Gland must be small enough to exclude the biggest Particles, and big enough to receive the lesser: And according as the Number of Branches is either greater or smaller, the Fluid which runs out at the Excretory Ducts will consist either of the largest Particles, or of all together mixed in any Proportion.

And thus we may understand how a Liquor thicker than the Blood itself may be strained off from the Blood, if the Orifice of the Gland be so big as to admit Particles of any Sizes, and the Branches so numerous as to draw off the thinner Parts, before the thicker arrive at the Excretory Duct.

An Observation upon Light. The Glands separate near thirty simple Humours from the Blood.

I could farther illustrate this Theory by Diagrams, and shew more plainly how, and in what Manner, the several Humours in the Body may be separated from the Blood, which must either be composed of so many Humours as are separated from it, or otherwise it must contain a few Principles, which mixed all together form the Blood, and which, variously combined, form the different Humours which are drain'd from it; as a few Rays of Light, of different Refrangibilities, mixed all together, produce a white Colour, but variously combined exhibit all imaginable Variety of Colours. And it is not at all probable, that the Blood, in which we discern but two distinct Parts, should be composed of near thirty simple Humours; for so many do the Glands separate from it: Nor is it agreeable to that simplicity which Nature constantly affects in all her Operations.

The Principles of all Natural Bodies are said not to exceed Five; and how prodigious is the Variety that results from their different Mixtures and Modifications?

If we suppose likewise but five Principles or different Particles in the Blood, their Combinations alone, with different Modifications and Proportions, will yield near as many different Humours as are separated from the Blood. And it is Matter of Fact, that Urine, Sweat, Tears, *Saliva* or Spittle in Man, and what we call *Slaver* in Horses, as well as the Milk in Human and Brute Creatures, are compound Liquors, and that in each of them there are Parts common to all of them. And if the Composition of some other Humours of the Body, is not altogether so plain and apparent as in these I just mention'd, yet it

it does not follow from thence, that they are not compounded, no more than that the Blood is not, because we do not perceive in it the several Humours which are separated from it by the Glands.

Since therefore the several Humours are form'd by the various Combinations of a few Particles which compose the Blood, and that each Humour is secern'd and separated by Glands placed mostly in some one Part of the Body, as the Gall which is separated in the Liver, and the Urine in the Kidneys; the Particles of Blood must fall into such Combinations as are fit to form Gall in the Liver, and Urine in the Kidneys, and so of the others. And if this was not the Case, the Glands could never separate such Humours from the Blood. And as all the Humours are composed of a few different Particles, the greater will be the Number of Particles combined to form Bile, and the greater Quantity of Bile will be separated, the fewer there are of all other Combinations at the Liver. Such Combinations therefore as are fit to form the Humours proper to pass thro' the Glands, where these Combinations are form'd, being there only requisite will be there most numerous: And therefore, wherever the Particles of Blood are most dissolved, there will be placed such Glands as separate Humours, which consist of the most simple Combinations, or of Particles which do the most easily combine: And at the greatest Distances from these will be situated the Glands which secern or separate Humours consisting of the most compound Combinations, or of Particles which do the most slowly unite. And between these will be all other Glands, which, according to either Extreme, will separate Humours more or less combined, or compounded of Particles which do more quickly or slowly combine together.

By the Thinness of the Liquor in the *Pericardium* or Bag The Blood surrounding and inclosing the Heart, and that which passes is most dissolved at thro' the Kidneys, the Particles of Blood seem most dissolv'd and about the Heart. at and about the Heart. For here we not only find the Effect of such Dissolution in the Secretions, but likewise we are acquainted with the Cause of it, to wit, the Force of the Air in Respiration, breaking the Globules of the Blood, which Force is demonstrable to exceed the Pressure of a Hundred Pounds Weight upon the Surface of the Lungs in a human Body, and much more in a Horse, whose Lungs are far bigger than ours. Nor is it evident only from the Causes and Effects, that the Blood is here most dissolved, but likewise from the very Methods which Nature takes to prevent the Effects of this Dissolution in some particular Places at a little Distance from the Heart: For, the Bile or Gall, and Seed of Animals being thick Humours, composed of Particles which combine but slowly together, and it being requisite they should be separated where the Liver and Testicles are placed, Nature has made Use of particular Con-

trivances to give the Particles, which were to form these Humours, more Time to combine than they would have had otherwise, being so near to the Heart.

The Formation of the Gall.

For the Formation of the Gall, she has contrived the *Vena Porta* and the Spleen; thro' the first the Blood moves near two hundred Times slower, (and thro' the last altogether as much,) than otherwise it would have done; and that the Particles which form the Seed might have Time to combine, the Orifices of the Spermatick Arteries are contracted, and they likewise arise from the *Vena Cava* a little below the *Emulgentes*, at a great Distance from the Testicles contrary to the common Course of Nature; by which Means the Blood is one hundred and fifty Times slower or longer in going to the Testicles or Stones, than otherwise it would have been.

The viscous Liquor of the Joints, where separated.

At the greatest Distance from the Heart, the viscous Liquor of the Joints is secern'd: as also some other Liquors, which do not require any Combinations; as the *Lympha* or watry Humour, which may be separated any where. And all these different Combinations which form so many distinct Fluids, arise from an attractive Power in the Parts of Matter, which though it be equally diffused thro' the whole Mass, yet according to the different Densities of Particles, and the Figures of their Parts, some Sorts of Particles will be soon united, while others require a longer Time to be join'd together; some will cohere or stick together more firmly than others, and Particles of one Kind will have a greater Tendency to unite with those of another Sort, in a certain Portion of their Surface, than in any other. But, lest I should tire the Reader with these long Digressions, (tho' there is not any Thing more necessary towards a right Understanding of the *Animal Machine*, than a thorough Knowledge of the Structure and Use of the *Glands* or Strainers of the Body;) I now proceed to give some Account of the Cure for the Glanders, when the same is curable.

Sequel of the Cure for the Glanders.

I have already hinted, that good, clean, and easy digestible Food, warm Cloathing, along with Bleeding, &c. are proper in the first Stage of the Glanders.

Secondly, a continued Use of the following Mixture every Morning, for at least a Month, will perform the Cure, if any Thing can touch the Root of the Distemper.

A Mixture for the Glanders.

Take a Pound of *Balsam of Capaiba*, (commonly call'd *Capivi*;) incorporate it well with the Yolks of twenty fresh Eggs; then add to it a Pound of Treacle; and mix all in six Quarts of good stale Beer, and keep it cork'd in a Stone Bottle for Use. *White-wine* is much better than Beer, if People will go to the Price of

Capivi Balsam.

it. *Balsam* is about 4 s. per Pound, at the cheapest Hand.

The Basis of this Mixture consists in the *Balsam of Capivi*, which is an excellent and very penetrating kind of Turpentine; and tho' there is a great Number of Turpentine, such as the Common,

Common, that said to come from *Venice*, the *Chio* Turpentine, and all the Kinds of Pitch and Tar are of this Tribe; and lastly, the *Balsam of Mecha*, or *Balm of Gilead*, call'd *Opobalsamum*; this last, to wit, the *Balm of Gilead*, is the finest Balsam we have; which, tho' of the Turpentine Kind, yet is so dear that it cannot be afforded to Horses of common Value, notwithstanding a little of it will go a great Way. But seeing some Gentlemen may take it in their Heads to try a little of it upon a Horse in the Glanders, here follows a Description of it.

The Balsam of *Mecha* or *Balm of Gilead* is a Resinous Li-
An Account of the Balm of Gilead.
 quor or Balsam, which at first is of the Consistence of Oil of sweet Almonds, but by Age becomes like Turpentine, loses much of its Smell, and grows Blackish. When fresh it is of a very agreeable Aromatic Smell, and tastes like Citron-Peel. The Plant from which it flows is call'd *Balsamum Syriacum Folio Ruta* by *Caspar Baubine* the famed Botanist. Monsieur *Lippi* was sent by *Lewis* the Fourteenth of *France* as Ambassador to the Emperor of the *Abyssines* in *Egypt*, where he was at great Pains to discover the Plant which produced this Balsam, and likewise the Manner of procuring it, which he at last did; and tells us, that there are three Ways of producing it. The First is by Running of itself from the Tree; the Second by Incision, or cutting thro' the Bark; and the Third is by boiling the Tops of the Trees; and that the Balsam which rises first, after a gentle Decoction, is very good, and much esteem'd; but what is got afterwards is of the coarser Sort, and of little Value. The first kind is sent intirely to the *Seraglio* of the *Grand Seignior*; the other Sorts are suffer'd to be exported.

This Balsam is not now to be found in *Judea*, which was its ancient Native Soil, and where it was very common before the Destruction of *Jerusalem*: But soon after that, the *Jews* destroy'd all their Trees, lest the *Romans* should make Advantage of them.

At present it is found at *Mecha* and *Grand Cairo* in *Egypt*, from whence it is carried to *Constantinople*, and is in very great Esteem, insomuch that the *Grand Seignior's* Ladies use it as a Cosmetick or Beautifier of the Skin; but as they cannot do this with any Success, I think they make Use of it only as it has a fine Flavour, and is very scarce: (I mean the best Sort.)

The Scarcity and Price of this Balsam makes it sometimes come to us very much adulterated, but when really genuine, no one Medicine can exceed it in opening Obstructions of the Lungs, and healing Erosions or Ulcerations from acrimonious and sharp Humours. There is nothing exceeds it in Asthmas and Pleurifies, and whatsoever else requires Expectoration or Spitting. All inward Decays, as well as Bruises and Sores are relieved by it; and particularly those of the Reins and Urinary Passages; for it very quickly passes off that Way, and shows itself

self in the Smell of the Urine. In fine, it imparts a Healing and Deterfive Quality to the whole Mass of Blood, so that nothing can be said truly to exceed it in the Cure of inward Wastings, &c. yet it is so dear (as I just now said) that very little of it is used; but the *Capiwi* Balsam substituted in its Stead.

If the Mixture with *Balsam of Capiwi* and syringing or washing the Horse's Nostrils well and often with warm Water and a little Honey of Roses in it, do not give Relief in the Glanders in the Space of three or four Weeks, I advise he may be knocked on the Head, and put out of his Misery; for he cannot be said to be curable: And altho' there are a Number of pretended Cures set down for this Distemper, in almost all Authors, yet I don't see any of them worth Notice, saving, that among Hands one may now and then give the Horse a Quart of the Decoction of *Guaiacum* Wood, made as follows.

The Guaiacum Decoction for the Glanders.

Take of the Raspings of Guaiacum, otherwise called Lignum Vitæ Wood, half a Pound; Raisins, and Liquorice Root, each two Ounces; boil these in six Quarts of River or Rain-Water to four Quarts; then Express or Strain it out strongly, and give it Milk-warm, a Quart every other Day for a Fortnight.

I need not tell the Virtues of the *Lignum Vitæ* Wood, or Gum of that Tree, in healing inward Ulcerations, or promoting insensible Perspiration by its warm deterfive Quality, seeing the same is sufficiently Experienced in obstinate chronick Cases; and if it promote Sweat it must be good in the first Stages of the Glanders, which are in my Thoughts oftener occasioned from obstructed Perspiration, brought on either by hard Riding and Slaving the Horse afterwards, or by repeated Colds in Winter Pasturage, than from any other Cause whatsoever, excepting such as are Distemper'd from Foals.

Gonorrhœa or Clap cured by Injection.

I must own, that if Liquors should be injected so far up the Horse's Nostrils as to reach the Seat of the Distemper, such Things would be very proper; in like Manner as we cure a Gonorrhœa or Clap in Human Bodies of either Sex, surely, safely, and in the least Time, by Injection; but this is applying the healing Liquor to the very Parts affected, without suffering it to go the tedious Round of Circulation from the Stomach to the Penis; neither need any one be in the least afraid of a Relapse or locking up of the offending Matter in the Body, (as the common Phrase is;) for I have (with never failing success) cured Gonorrhœa's by Injection for twenty Years past, unless I happened to have to do with a whimsical Fellow now and then, who would not be satisfied except he was continually taking Bolus's, and keeping a Correspondence with the Close-Stool. But to return to the Glanders in Horses.

I say, if with a long and well contrived Syringe one could throw up the Liquor so far as to reach the parotid Glands, or Glands situate at the upper Part of the Throat, it might be of Service;

Service; but I am afraid that will be hard to be done; however, for the Satisfaction of such as have a Desire to try, I shall set down as proper an Injection as can be thought of in such Circumstances.

Take Venice Turpentine, three Ounces; mix it very well with the Yolks of a Dozen Eggs; then add Honey of Roses, six Ounces; Egyptiacum Ointment, two Ounces; White Wine, one Quart. Mix and Syringe it up the Nostrils Milk-warm; but unless (as I just now hinted) you cause it to reach the very Part affected, it cannot possibly be of Service, farther than washing the nasty Matter out of the Nostrils.

I have considered all the Kinds of Liquors prepared to be injected up the Nose in the Glanders; but I take the above as one of the best contrived Injections for the Purpose; and as to Myrrh and Aloes, as ordered by Mr. Gibson to be mixed with these Liquors, there is little to be expected from them, whatever Notion some People may entertain of their specifick Virtues in mundifying or cleansing old Sores or Ulcers: For they are far inferior to the Turpentine, in Cases where healing and deterfive or cleansing Medicaments are indicated.

C H A P. XXI.

Of the Strangles, Bastard-Strangles, and Vives.

THE Strangles scarce need any Description, by reason they are pretty well known to all; only I must take Notice, that this Distemper as surely happens to young Horses (at one Time or other) as the Small-Pox does to Children; and it may well be compared to a Quinsy in Human Bodies, which is an Inflammation of the Muscles, &c. destined for the Office of Swallowing; and a Tumour being formed, the Patient is often suffocated before the Matter is sufficiently digested and discharged; which Discharge happens for the most Part on the Inside of the Throat, by reason of the Thinness of the Skin in comparison to the outward Skin, and in such Case it is thrown up by the Mouth in Human, and through the Nose in Brute, Creatures.

The Bastard-Strangles differ very little from the true, only the Degree of Inflammation is not so violent; and in like Manner, we make a Distinction between a True and Bastard-Quinsy in Human Bodies.

There is one very good Remark in Mr. Gibson's Farriery, under the Chapter of the False or Bastard Strangles, which is this, "that when Swellings about the Jaws and among the "Kernels happen to old Horses, it is an infallible Sign of a "crazy Constitution, and is oftentimes the Forerunner of
" the

“ the Glanders, unless such Swelling has been occasioned by some Violence.” I suppose by Violence he means over-hard Usage, and Surfeiting, &c. and farthermore he says (which I know to be very true) that “ we may even observe “ in Human Bodies, in all tender and delicate Habits, the “ same Disposition to Swellings in the Glandulous Parts; but “ more especially in those that are Consumptive.”

Vives hap-
pen to Horses
of all Ages.

The Vives according to all Accounts differ little from the Strangles. The *French* call this Distemper *Avives*, though I cannot see any Derivation of the Word, so as to imply a Swelling of the Glands or Kernels near the Ear-Roots, for that Part is the Seat of this Disorder; and it happens to Horses of all Ages; whereas the Strangles is mostly confined to young Horses.

Swelling of
the parotid
Glands and
Relaxation
of the Uvula
in Human
Bodies, com-
par'd to the
Vives in
Horses.

There is a Distemper in Human Bodies much like the Vives in Horses, to wit, the Swelling of the parotid Glands behind the Ears, and Relaxation of the Uvula, which when it happens, the common People cry out their Ear-Roots are down, and therefore they immediately apply themselves to some good old Woman who is Skilled in stroaking them up again, and this Operation together with a little Pepper and Milk, or Pepper and Bread and Butter, performs a Cure, according to their way of Thinking; though they do not consider that Friction, or rubbing any Swelling upon a Glandulous Part (which is mostly of a Cold Nature, the Juices there being so far out of the common road of Circulation) helps to dissipate or disperse the Tumour; add to this, their being directed to keep the Throat and Ears well covered, which indeed conduces chiefly towards the Cure.

The Cure.

As all Swellings upon Glandulous Parts of the Body are a long Time in Suppurating, (or coming to a head;) therefore a great deal of Patience is required, lest by a too hasty Incision or Cutting them open, you cause the Wound to Heal before the Humours to be discharged are sufficiently digested and prepared by Nature; and by this Means, you bring about two or three distinct Tumours, one after another, when one would have done the Business, provided you had been endowed with the Gift of Patience, as before observed.

If the Swellings, (for I must put them in the plural Number, seeing several Glands are affected) I say then, if the Swellings are recent, or of short standing, the Disease may perhaps be cured by the first Intention, which is doing it the nearest way, and not suffering the Humours to come to Suppuration, and for this End Bleeding, Purging, with the Use of Emollient Clysters now and then are of Service: In General all Evacuations are necessary, but there are not near so many ways to perform this in Horses as there are in Men; for as Dr.

Baynard

Baynard (speaking of Evacuation) in his *Decade* very humourously expresses it.

Piss,	Purge,
Spew and	Bleed and
Spit,	Blister,
Perpiration and	Issues and
Sweat,	Clyster.

"In these Ten Words the whole Art is comprised;

"For some of the Ten are always advised.

I say, that Evacuation by Vomiting, Spitting, and Blistering, are not, nor can properly be practised upon Horses on every Emergency; neither ought any of the strongly operative Medicines which promote Urine, be given to a Horse in order to dissolve Swellings about the Throat, Ears, &c. for as there is always more or less of a Symptomatick Fever attending these Tumours, (such Medicines being mostly of the Turpentine-Kind) the Fever is heightened and increased by them; therefore through the whole Course of the Strangles, Bastard-Strangles, and Vives, let the Horse be kept Cloath'd, and more especially his Head and Throat, and have White-Water and soft Food, and the Tumours or Swellings be anointed with the following Ointment.

Take Flanders Oil of Bays, half a Pound; Fresh Butter clarified, four Ounces; Crude Mercury or Quick-Silver, one Ounce; Oil of Turpentine, one Ounce. Mix or incorporate the Quick-Silver with the Oil of Turpentine very well in a Gally-Pot, and then put to it the Oil of Bays, &c. which should be stirred or wrought together a Quarter of an Hour or longer, that the Mercury may be divided into as small Globules or Particles as possible, and (when the Hair is shaved off the Swelling,) Embrocate or Anoint the Part with the Ointment for a good while; and by that Means the small Globules of Quick-Silver will penetrate the Pores of the Skin, and by their Weight add to the Blood's Momentum or Stroke against the Extremity of the Vessels, insomuch that (if any Thing will) this will dissipate and dissolve the Swelling, by the Help of the Oil of Bays, &c. which softens the Parts, and consequently gives more room for the Blood and Humours to circulate; when by the Power of the Quick-Silver as aforesaid a greater Weight is added to them. For whatever Body is mixed with a Fluid (specifically heavier than the Fluid itself) must add to the Weight of such Fluid: Thus Preparations of Iron, Mercury, &c. when mixed with the Blood add to its Weight, and consequently to its Momentum or Pulse; and by these Helps, Obstructions, &c. of the small Vessels are opened, and many Disorders, proceeding from a slowly Circulating, Sisey Blood, are Cured.

The first Ointment for the Strangles, Vives, &c.

Preparations from Iron, Mercury, &c. Their Operation explained.

During

During the Use of the aforesaid Ointment, the Horse should be purged with the common Aloes-Purge, before set down as a General Purge for Horses; provided the Blood is not very Feverish, which may be known from the Motion of it, by laying one's Hand near his Heart upon the near Side, (as it is generally called,) and by so much as the Pulses exceed the Number 40 in a Minute, (which is by Experience found to be the nearest Calculation of the Syctole's or Contractions of the left Ventricle of a Horse in a healthful State;) I say, by as much as these Pulsations exceed 40 in a Minute, by so much is the Feverish Heat increased; and if the Horse is found to be Feverish, (I mean to any Degree,) for Example, if his Heart or the left Ventricle thereof Contract above 50 Times in a Minute, it may be supposed his Fever is so high, that Purging Medicines would be dangerous; for nothing of that Kind can be given to any Animal, but it raises (for a Time) a Heat and Commotion in the Blood; therefore I say, forbear Purging a Horse in any Distemper whatsoever, when his Pulse beats above 50 Times in a Minute.

Purging Medicines dangerous, when a Horse's Pulse beats above 50 Times in a Minute. How to measure the Times a Horse's Pulse beats in a Minute.

To measure the Times a Horse's Pulse beats in a Minute, a Stop-watch which runs Seconds, or a Minute Sand-Glass, as there are enough of them, especially in Maritime Towns; I say, either of these (in a good hand) will do, where a Person is not provided with a proper Pendulum for the Purpose.

If the Tumours or Swellings will not give way to Resolutions, or such Applications as open and loosen, then, we are to try such Things as will bring the Matter to suppurate or digest: And here it may not be improper briefly to explain what is meant by these Terms, to wit, Repellents, or such Medicaments as drive back Tumours, &c. and Ripeners or Drawers as they are usually termed; for if a Person rightly understand when to apply either the one or the other of these, he will be far above the Reach of our common Farriers, who when they would draw the Matter to a Head, often through Ignorance apply Repellants, which (by driving back the offending Matter into the Mass of Blood) raise new and fresh Tumults and Commotions, which too often endanger the Life of the Animal. And first,

Repellents, their Manner of Operation, explained.

By Repellents, I mean such Medicines or Applications, which prevent such Afflux of Fluid to any particular Part, as would raise it into a Tumour or Swelling: But to know how this may be effected, it will be convenient to attend to the several Causes which can produce a Swelling, or force out of the Vessels any of their Fluid Contents, by some unnatural Discharge.

All Tumours have necessarily one of these in their Cause, to wit, either an Increase in the Velocity or Quantity of the Fluids,

Fluids, or a Weakness in some particular Part; and sometimes both concur.

An Increase in the Velocity of the Fluids makes them push more forcibly against, and distend, all the Parts in their Circuit: If therefore any Part be unequally pressed, or relaxed or loosened by external Injuries, (as is the Case of a Clap in the Back-sinews of a Horse,) that Part will be more elevated than any other; and for want of equal Resistance with the rest of the Body, will at length receive such a Quantity of Fluid, as will raise it into a Swelling, more especially if any of its Vessels be obstructed: Because the Protrusion of fresh Matter *à Tergo* will continue to add thereunto, until such Time as the Part be upon the utmost Stretch, and can hold no more.

The Effects of an increased Velocity of the Fluids explained.

In this Case all those Things are said to be Repellent, which check or stop the growth of the Swelling, and assist the refluxent Blood in taking up the obstructed Matter, and washing it along into the common Stream again. And this Intention is chiefly favoured by Evacuation and Revulsion: For *whatsoever lessens the Quantity of the Fluid in the Body, will diminish the Force of the remaining Fluid upon the tumified Part.* But it concerns us most to know, with relation to the Strangles, &c. how external Application to the Part itself helps or assists in this Affair. And,

Herein a Medicine comes to be a Repellent, by consisting of such subtle Parts, as may transmit some of them through the Pores, and help to render the obstructed Matter more Fluid; so that it becomes the more easy to be softened, and fall again into the circulating Current: But in this Case there is a hazard likewise, of such Things putting the obstructed Humour into a Ferment, whereby it sooner turns into Pus or corrupt Matter, and then they are called Suppuratives or Ripeners.

Repellents sometimes dangerous.

What therefore in a strict Sense is to be reputed a Repeller, is that which astringes or binds together (as it were) and strengthens the Part, so as to make it resist any such Lodgment of extravasated Matter, &c. and these are such, whose Qualities are most manifest in their Coldness and drying Properties; but there are few Instances where Bandage or binding down the Swelling in a proper Manner, is not much better than such Applications; therefore (with the Knowing Part of Mankind) very few Medicaments come in play for such purpose; only in Cutaneous or skinny Distempers, where the serous or thin Part of the Blood is too plentifully separated by the Miliary-Glands, so that it deforms the Skin, as also in some Kinds of Hæmorrhages or Bleedings, Things of this Nature take Place; which answer such Ends by astringing the Fibres,

Fibres, so that the Apertures or Openings are closed, and do not admit any such Fluid thro' them afterwards.

Stimulants
sometimes
operate as
Repellents.

Some Things also answer this End by stimulating the Fibres of the tumefied Part, so as to give them sudden and forcible Twitches, whereby the Obstruction is sometimes loosen'd and shook (as it were) away with the reflux Blood; and such a Sort of Motion as this will be occasioned by the sudden Application of any Thing extremely cold, as common Water, or the like: But this Practice is seldom safe; by reason if the first Efforts, which the Fibres are put upon by such Means, do not succeed in breaking away the inclosed Matter, they will be strain'd, and not afterwards able to repeat their natural Vibrations: The Consequence of which is Weakening the Part, and so the Tumour or Swelling will be still more obstinate.

There are many other Means and accidental Circumstances, which contribute to favour or retard this Way of Practice; I mean the Use of *Repelling Medicines*; but the Hints already given, may, I hope, prove sufficient: Therefore I shall now give an Account what is meant by *Suppurative Medicines*, or such Medicaments as are generally stiled *Ripeners* or *Drawers*.

Suppurative
Medicines,
their Opera-
tion ex-
plain'd.

By *Ripeners* or *Drawers* I mean those Applications which, by the Activity and Warmth of their Parts, are able to penetrate the Pores, and mix with, and rarefy any obstructed Matter, so that it may be render'd fit for Discharge upon laying open the Part by *Cauticks* or *Incision*.

Now in many Instances, as the Matter by these Means resolves, and grows more fluid, the reflux Blood is apt to wash it back into the common Mass; which sometimes is of that Nature, as to do a great deal of Mischief; or by making it take up more Room upon its Rarefaction, occasions it to distend the Parts in which it is contain'd more strongly; whereupon a Sense of Pain is excited, and thereby a greater Course of Fluid, and consequently a needless Increase of the Tumour or Swelling caused, so that Medicaments under this Denomination require to be in the Hands of such, who are so well acquainted with the Mechanism of the Animal Oeconomy, as to be able to apply them to the best Advantage, and know how to avoid the Hazards which may arise from their Abuse. Now to return,

I say, if the *Strangles* will not yield to Bleeding, Purging, &c. so as apparently to dissolve away, then Poultices made of scalded Bran and fresh Hog's-Lard, mixed and apply'd warm, are as good as any Thing else which can be contriv'd for such Purpose, notwithstanding every Person may pretend to Secrets of the Kind. But for the better Satisfaction of such whose Heads run upon one particular Kind of Poultice or Cataplasim more than another, (I mean where softening Things

are indicated,) I shall show how and in what Manner these Sorts of Applications operate: And First,

Emollients are such Things as sheathe and soften the Asperity or Sharpness of the Humours, and relax and make supple the Solids at the same Time. And it is very easy to conceive the Manner how these Effects are brought about by one and the same Medicine.

Emollients, or softning Medicines, their Manner of Operation explain'd.

Secondly, By what Means soever the Juices have obtain'd a Sharpness or Asperity (and in the large Glands they are very subject thereunto,) so as to vellicate and render uneasy the Fibres and Nervous Parts; those Things which are smooth, soft, and yielding, cannot but, (as it were) wrap up their Points, and render them imperceptible, inasmuch that they will not be able to cause Pains and uneasy Sensations; and by this Means they may gradually (by the proper Course of Circulation) be brought to some convenient Emunctory, or Outlet, without doing any Injury by the Way.

Such Juices likewise draw the Fibres into Spasms or Convulsive Twitchings, and keep them tense or upon the Stretch, so that Obstructions of the worse Kind are frequently form'd.

In all such Cases therefore, *Emollients* lubricate and moisten the Fibres, so as to relax or loosen them into their proper Dimensions, whereupon the Cause of the Grievance is removed, and the Disorder ceases. Now to return.

The Swelling of the Glands, in the Disorder of the *Strangles, Vives, &c.* must be well embrocated or rubbed with some softening Ointment, or Oil, such as Ointment of Marsh-Mallows, commonly call'd *Dialthæa*, Oil of Lillies, or the like; warm these pretty well when you use them; but, where they cannot be had, I think sweet *fresh Butter* may do well enough. However, before I quit the Subject of *Emollient* Applications, I cannot omit setting down an Ointment I have often tried (with great Success) to dissolve tumified or swell'd Glands in human Bodies, whether from (what is commonly call'd) the *Evil*, or from any other Cause whatsoever; and if it will do this in Man, it will do the same in Brute Creatures, only making it a little more penetrating, by reason of the Skin's being thicker in those than in human Bodies; and this may be done by adding a little Oil of Turpentine, and Spirit of Wine, mix'd in equal Quantities. About a Tea Spoonful of this Mixture to an Ounce of the Ointment well incorporated together, will be sufficient, with long Friction or Rubbing, to cause it to enter the Pores and disperse the Swelling, provided such Swelling be taken in its first Stage, and before the stagnating Humours are become corrupt.

The Ointment is this. Take the Flowers of the Herb *Digitalis* or Fox-Glove, any Quantity; and stamp or beat them well up in *fresh Butter*, as many as you can make the Butter take up;

The second Ointment for the Strangles, then &c.

then set it in a Pot in a Cellar for a Fortnight or longer 'till the Flowers are sufficiently rotted in the Butter; when this is done, boil it a while; then strain and keep it for Use.

This Ointment you must know was held as a particular Secret with an old Doctor of my Acquaintance, who had a vast deal of Experience, I think at least fifty Years, when he told me of it, and that he never found any Thing exceed its Virtues in resolving Tumours of the Glandulous Parts, &c. and he said he had frequently cured Colts of his own breeding by the Use of it, when the common Means used by Farriers had fail'd; tho' I confess I want Faith to think there is any more in this Ointment, than in others prepared for the like Intentions, such as the Ointment of *Marsh-Mallows*, *Palm-Oil*, &c. which act in the Manner before set down as *Emollients*.

If the Matter of the *Strangles*, *Vivres*, &c. can be felt to fluctuate under one's Finger upon the Pressure of the Tumour, it is best to slit open the Swelling, according to the Direction of the Fibres, the whole Length of the *Sinus* or hollow Part, and dress the Wound with Dozels of Tow dipp'd in the following Ointment very warm.

The Wound
Ointment
for the
Strangles.

Take *Rosin*, and *Burgundy Pitch*, of each one Pound and half; *Honey*, and common *Turpentine*, each eight Ounces; *yellow Wax*, four Ounces; *fresh Butter* boil'd and clarified, one Pound; *Verdegreafe* of France finely powder'd, one Ounce: Mix.

First melt the *Rosin*, *Pitch*, and *Turpentine* together with the *Bees-Wax* shaved in small Pieces; then boil them up with the clarified *Butter*, and put the Ointment into a Pot that will abide the Fire, and stir in the *Verdegreafe* by Degrees, 'till the whole be pretty cool, that the Powder may not by its Weight sink to the Bottom of the Pot; for if it do, the Ointment will be too absterfive when it comes near the Bottom.

This Ointment may serve as a general Wound-Ointment for all Sores or Wounds in any Part of the Horse's Body; for it will not easily suffer fungous, spongy, or proud Flesh to grow, as is common when Ointments have too much Oil or Grease in their Composition: Yet if the Wound happen to put forth proud Flesh, as is common to old Sores, you may wash it with a few Feathers tied together, and dipt in the following *Phagedenic Water*.

Water to
eat away
fungous or
proud Flesh.
Lime-Wa-
ter, how to
prepare it.

Take of white *Sublimate in Powder*, two Drachms; dissolve it in a Pint of *Lime-Water*, and it will turn of a yellowish Colour, which keep in a Bottle for Use.

The *Lime-Water* is prepared by pouring about a Quart of Water upon a Pound of quick or unslack'd Lime, and when it has stood all Night, decant the clear Water for Use.

At the same Time the Wound is dress'd with the Ointment, the remaining Hardness, if any, in the Neck, may be anointed with the first Ointment as prescribed for the *Strangles*, or else the

the Fox-Glove Ointment, to dissolve it: For, if it is found, that amongst the Glands all the Corruption is not discharged at once for want of Communication one with another, so that there often happens two or three Gatherings one after another, let the Wound be kept open as much as possible, not by the Use of Tents, for they are mostly of pernicious Consequence, Tents most: for Reasons hereafter to be assign'd, but by Incisions into all y hurtful: the sufficiently sinous or hollow Parts; and if the Dozels be thrust pretty tightly into the Wound, it may be kept open 'till such Time as the offending Matter is discharged.

Before I close this Chapter, let me advise, that all Ointments of this Nature be used very warm, and then they will assist the natural Heat of the Part, which is generally wanting on these Occasions, by reason the Blood and Spirits are drain'd off by the Wound, which robs the Parts adjacent of the due natural Heat mention'd; and all the Tribe of Turpentine have this particular Quality in them, to wit, if you apply them hot, they are strongly digestive and deterfive, if coldly apply'd, they are almost of as little Efficacy as a greasy Ointment, which indeed is bad enough.

I must now proceed to give an Account of the Disorder call'd the *Anticor* in Horses.

CHAP. XXII.

Of the Anticor.

THIS Disease in Horses is call'd in *French*, *Anticœur*, on Account of its being over-against the Heart, or in the Breast.

The Signs of an *Anticor* are (according to the best Observa- The Signs, tions of Men of Experience in Farriery) a Swelling in the Breast of a Horse, which sometimes rises upwards along the Gullet, and threatens suffocating him; he will hang down his Head, and groan much when he is laid down; forsaking his Food; neither can he stoop to Grass or Hay upon the Ground; he has a faltering in his Fore Legs, and trembling of the whole Body; and if you tie up his Head to give him a Cordial Drench, he is likely to tumble over.

It is said, that our *English* Horses are not so subject to this *English* Distemper as the *French*, *Spanish*, or other foreign Horses are; Horses not tho' I know no Reason for it, unless it be that our Climate, very subject to the *Anticor*, which is more temperate, does not generate these inflammatory Disorders so frequently as in the hotter Regions.

The Cause proceeds from taking Cold upon hard and labo- The Cause rious Exercise, so that the Blood, &c. (as it were) stagnates, of an *Anticor*, tho' near the Heart, and Parts adjacent; and this made the *Sieur*

De Solleyfell imagine the *Anticor* a Distemper of the *Pericardium* or Bag which contains the Heart.

Others are of Opinion, that it proceeds from rank Feeding, and much Fatness. But let that be as it will, here follows the Cure.

The Cure.

As there is still a feverish Heat more or less in the Blood, when a Horse is seized with the *Anticor*; therefore, First, Bleeding, (at several Times,) according to the Strength and Urgency of Symptoms, is indicated; I say, at several Times, because it is found by *Hæmostatical* Experiments, that Bleeding at different Times is the most proper Method to cause Revulsion, and hinder the Blood from flowing with that Impetuosity into the pain'd Part, as it otherwise would: And tho' 'tis true that once Bleeding may do this, yet it will not so effectually ease the Pain, as when Blood is drawn at several Periods, according to the Urgency of Symptoms, as I have already said.

Clysters,
when proper

Next to Bleeding, (if the Horse be bound in his Body or is what we call Costive) Clysters are of Use; and the following may serve as a general one.

A Clyster.

Take Leaves of Mallows, and Pellitory of the Wall, of each three Handfuls; Camomile Flowers, one Handful; Anniseed, and sweet Fennel Seed, each half an Ounce; Linseed, one Ounce; Boil these in three Quarts of Water to two; then strain or press out the Liquor strongly; and add of Caryocostinum Electuary, one Ounce; common Salt, two Ounces; and common Plaster Oil, three Ounces: Mix.

These should be injected thro' a very long Pipe for the Purpose, and as warm as a Man can bear his Cheek to the Side of the Bladder it is tied up in; and then it may be expected in a little Time (perhaps in an Hour) that the Horse will void his Excrements, together with Wind, &c. and by that Means his feverish Heat will be diminished; for, if the Excrement or Dung of Animals be longer than ordinary retain'd, some of its putrefying Particles are imbibed by the Intestines or Guts, and thereby get into the Blood, which still adds Fewel to the before inkindled Flame.

The Clyster may be repeated every two or three Days, as Occasion offers; and the Horse's Food should be such as is ordered in the *Strangles*, as white Water with a pretty Deal of Oatmeal in it; for if you can nourish him up with this, and soft Food, such as boiled Barley given moderately warm, &c. it is much the best; not only as such Things are easiest to digest, but also by reason that Hay gives the Horse much Trouble in chewing, and by the Motion of the Muscles destin'd for *Mastication* and *Deglutition* or Swallowing, the Inflammation upon the Throat is increased; for, this Distemper (as I said before) sometimes rises from the Breast up the Gullet, and threatens suffocation or choking the poor Beast.

If

If the Fever runs high, which (as I have hinted) may be known from the Number of advanced Pulses above Forty, the common stated Number in a Minute, when a Horse is in Health, and not scared or frightened: I say, if his Fever has run high, you may (after the Eighth or Ninth Day of the Disease, accounting from the first Attack of it) give him about two Ounces of the common *Cordial Ball*, which contains most Things proper for that Purpose, and you may mix it with two Ounces of *Venice-Treacle*, four Ounces of common *Treacle*, and a Quart of *stale Beer*; tho' if you will go to the Charge, a Quart of Canary is much better than Beer, provided the Canary be genuine and fresh. When this is done, give it the Horse carefully, so that as little may be lost as possible, and walk him a while in his Cloaths afterwards; but let his Water be always a little warm'd, as before observed.

A Cordial proper after the eighth or ninth Day.

Three of these *Cordial Mixtures* given at two or three Days Distance, I think sufficient to recruit the Blood and Spirits, after they (the latter especially) have been wasted and much spent in this Distemper,

It must be remember'd, that a Horse should rest for some considerable Time after acute Diseases, as Fevers of any kind, or other violent and sickly Disorders; for if he is (when in this weak Condition) put to labour beyond his Strength, it may occasion many and great Evils; as *Manginess*, *Farcin*, Diseases of the Stomach and Bowels, as *Scouring*, &c. So that from a tolerably good Horse before the Distemper, he is now become a *washy*, *good-for-nothing*, *sluggish Jade*; and what is worst of all, is likely to continue so, unless he undergoes a tedious Course of Physick, in order to bring the Fibres to their former Power of Elasticity and Firmness.

A Horse should rest a good while after acute Diseases.

C H A P. XXIII.

Of Diseases of the Stomach, and Guts.

MR. Gibson begins the 33d Chapter of his Book of Farriery with a very nice Observation; to wit, that "as the Food of Horses consists of the most simple Productions of the Earth, they cannot be liable to many Diseases of the Stomach." And what he says farther under the same Head is worth reading; only when he comes to treat of the Cure, he sets down two Purges, which he tells us may be either of them given with Success, to recover lost Appetite. They are near the Close of the 124th Page of his Book, and one of them is a Decoction, the other made into Bolusses or Balls. Now the Decoction is a pretty mild and easy-working Purge; but the Ball is strong enough for any Horse in full Vigour. Indeed he says,

The Use of
Aloes very
extensive.

Resinous
Purges dan-
gerous and
rough in O-
peration.

Horses not
so subject to
Diseases of
the Stomach
as Men, and
why.

take of the *best Aloes* an Ounce and half, by which he may mean the *Succotrine Aloes* brought to us from *Arabia*, and *Egypt*, in Skins, and is of a blackish Colour in the Lump, but of a shining golden Hue, when broke and powder'd, and has but little Smell: I say, if he intended this Sort of Aloes, he should have been a little more explicit, for it is dearer than the common Aloes by five Shillings in the Pound Weight; therefore you need not fear the Apothecaries will let you have that of six or seven Shillings, when they can sell you Aloes for sixteen Pence a Pound, which is imported from *Barbadoes* in large Shells or Gourds, of a strong offensive Scent, and is call'd *Hepatic Aloes*, from its dark Liver Colour. In short, I know no one Drug of more universal Use in Medicine than Aloes, nor of more Efficacy for many Intentions, both as a Purge and Alterative. But to return.

In the *Purging Ball* for lost Appetite, as prescribed by Mr. *Gibson*, there are two Drachms of *Diagridium*, which is a Resinous Substance call'd *Scammony* roasted in a Quince; but correct it how you please, it is still so Resinous that small Particles of it are apt to stick amongst the Folds of the Stomach and Guts, and cause such Vellications or convulsive Twitchings, that they often endanger the Life of the Animal; and moreover, by the rough Operation of such Resinous Purges, the Bowels are so irritated to a Discharge of their Contents, that the Creature oftentimes purges off the very *Mucus* or slimy Liquor or Moisture which daubs over their internal Coat, and which *Mucus* Nature deposits there as a Defence against any sharp irritating Juices which may pass through them.

Besides, two Drachms of *Diagridium* is twelve good Doses for a strong Man, and this (consider'd with the Quantity of *Horse Aloes*) I think is an over-Dose, especially for a Horse whose Stomach is (according to my Text) supposed to be in a depraved and weak Condition. Therefore when I come to the curative Intentions I shall offer some Amendments to Mr. *Gibson's Decoction and Ball for Recovery of lost Appetite*.

Most Distempers, especially Chronic ones or those of long standing, derive their Original from depraved Digestion; and altho' Horses (as I have said before) are not so subject to Diseases of the Stomach as Man, who ransacks both the *Indies* for hot fiery Spices to satisfy his most unreasonable Gustation; yet many Diseases in them are produced from Faults in the Stomach, or in other Words, the Faults of the Stomach or depraved Digestion, very often are the Occasion of many Diseases in Horses, as well as that the Diseases of the Body bring on lost Appetite.

There are two most remarkable Causes of *Chylification*, Hurt or Crudities in Digestion, to wit, the *Acid Crudity* and the *Nidorsese*. And First,

Acid

Acid Crudity brings on the Heart-burn, sour and frequent Acid Eructations or Belchings upwards; and this in Mankind, more especially in Children, who are very subject to acid Crudities, is thrown up by Vomit; oftentimes by Nature, sometimes by Art: But as Horses, by reason of the Spiral Windings of the Gullet where it is inserted into the Stomach, cannot easily Vomit, therefore these austere and soure Juices, are carried along into the Intestines, and there cause Gripings, &c. And when a Horse is troubled with over much Acid in his Stomach and Guts, he as naturally and with as good Reason desires Mud and Dirt, as he does his Hay when he is Hungry: And in my Thoughts, every Horse which is constantly kept in the Stable, and has not Grass sometimes for Years together, ought to have now and then powdered Chalk, burnt Hartshorn, or the like given him in his Provender, instead of being threatned and often beaten by his Ignorant and Illiterate Keeper, for eating what would cure his Disorder in Time. Burnt Hartshorn is much better than the Clay or Mud he would eat, because it will absorb or drink up more of the offending Acid in the Stomach, &c. And how powerful the Testacea or shelly Powders, as well as Chalk or burnt Hartshorn, are in destroying Acids, or rather in absorbing them, any one may judge who makes the Experiment by mixing Vinegar or the like with such Powders, which immediately lose their Sharpness and Pungency upon the Tongue.

The Cure of Acid Crudity consists in this; to wit, first, in absorbing the Acid by the Use of burnt Hartshorn for some Time; then a Cordial Drink or two, prepared with Volatile Aromatics, according to the following Prescription.

Take a Quart of White-Wine, or for want of this a Quart of Beer; and grate into it two Nutmegs of about a Penny a-piece; and give it the Horse by a Horn, Milk-warm.

After the Drink, in a Day or two, may be given the following Purge; but if Purging be made use of before such Preparation of the Juices, nothing will be discharged but Gripings and Convulsive Motions will be occasioned. The Purge is this.

Take of Aloes, one Ounce; Diapente, an Ounce and half, Salt of Tartar, half an Ounce; Syrup of Buckthorn, an Ounce and half; and with Flour of Brimstone make them up in two Balls, and give them it in the ordinary Method.

Nidorous Crudity, from the Word *Nidor*, which signifies any Thing of a bad Smell or Flavour, is, when the Nourishment is corrupted, so that it turns into a Putrefied Solution of a horrid Taste and Smell, altogether unfit for proper Chyle, and does not (in any eminent Degree) differ from Acid Crudity; only the Eructations are not acid, but rather insipid, putrid, or sulphurous, like the Taste of fry'd Eggs when they are burnt, as

Acid
Crudity.

The Cure of
Acid Cru-
dity.

A Purge for
Acid Crudities in the
Stomach,
&c.

Nidorous
Crudity
what.

near as I can any way judge it. This occasions Heart Burnings; therefore the Horse partly loaths his usual Food, and longs after Mud and Dirt; and what the divine *Hippocrates* says with relation to Human Bodies, will hold good in Brute Creatures, whose Composition is of Solids and Fluids actuated by the same Mechanick Powers with our own; to wit, *that those Things which the Appetite is fond of, are much more easily digested, than such as the Stomach hath no desire after*; and therefore the common Proverb is true, *what one Relishes, Nourishes*. For, the Stomach may truly be stiled the Kitchen of the Body, its Office being to receive the Food as into a Store House, and to digest the same is its Primary Action; whence Indigestion is an undoubted Fore-runner of the Destruction of the whole Oeconomy.

The Cure,

Digestion is simply a Work of Nature, nor can it be promoted by Art; for we can only assist and help the Work of Nature, and so correct the Ferment in the Stomach, that it may be reduced to its natural State. Therefore, the same Method I have prescribed for the Cure of Acid Crudities, will perform the Work with relation to Nidorous Crudities.

I shall just mention a Passage in Mr. *Gibson's* Book of *Farricry*, with regard to Horses which are troubled with soure Juices upon the Stomach, and which for such reason desire to eat Clay out of the Walls, &c. He tells us, "that when he attended the Army, he took an Opportunity of gratifying a Horse in a very ardent Desire of that Kind. The Horse had suffered very much from his Keeper, and had been often beat for eating Clay out of the Wall; he then says, he brought him a Piece of Chalk the bigness of a Man's Fist, and laid it in the Manger; the Horse turned it over with his Nose several Times, and at last broke off some of the Corners and eat them; whereupon Mr. *Gibson* took up the Chalk to break it into smaller Pieces; but because the Horse thought he was going to be robb'd of it, he push'd his Head after it with all imaginable Eagerness, and when it was broke he eat the greatest Part of it, and fell immediately to his Hay. The Dragoon told Mr. *Gibson* he gave him more Chalk afterwards, and observed that the Horse eat his Hay better for it; but being soon after obliged to march, he was perfectly cured by the Exercise, and had no farther Cravings of that Kind."

You may by this Account, see how necessary it is to allow a Horse (that has Acid Juices in his Stomach in too great abundance,) to eat Clay, &c. or rather to give him Chalk, burnt Hartshorn, or Oyster-shells, in fine Powder, or the like; otherwise he will not thrive nor eat his Hay; and also Exercise is one great Help, towards removing the Complaint.

The

The Hungry Evil in Horses, which is the same that in Man ^{The Hungry} we term *Malacia* and *Bulimia*, vulgarly called a Canine or ^{Evil.} Dog-like Appetite, although *Bulimy* signifies an Oxe's Appetite.

The Cause of all these is Acid and Nidorous Crudities, of ^{The Cause.} which I have just now treated; and as the Cure consists in Absorbent, Evacuant, and Stomachick Medicines as mentioned, ^{The Cure.} I shall not take up the Reader's Time so much as to make a distinct Chapter of it, but proceed to an Account of the Distempers of the Guts, and first of the Colick.

C H A P. XXIV.

Of the Colick.

AS the Colick is a Distemper which (as well as many more of the Stomach and Guts) proceeds from Flatulence or Wind pent up, I must beg leave to explain what is meant by *Carminative* Medicines, or such Medicines as are said to expel Wind; and as the Nerves are frequently under great Disorders from pent up Wind or *Flatul*'s, what dissipates and expels such Vapours, must be reckoned of great Service to those Parts.

A great many People seem to be Strangers to this Term, I ^{Carminative} mean the Word *Carminative*, which does not appear to carry ^{Medicines} in it any Thing expressive of the Medicinal Efficacies of those ^{explained.} Simples, which pass under its Denomination.

This Term certainly had its Rise as thus apply'd, when Medicine was too much in the Hands of those Jugglers, who, for want of a true Knowledge in their Profession, brought Religion into their Party; and what through Ignorance they were unable to do by rational Prescription, and the Use of proper Medicines, they pretended to effect by Invocations, and the Correspondence they kept with Heaven: Which Cant being generally, for the Surprise sake, couch'd in some short Verses; the Word *Carmen* which signifies a Verse, was made also to mean an Incantment: Which as it was a very good Cover for their Ignorance as well as their Knavery, was frequently made use of to satisfy the People of the Operation of a Medicine they themselves could not account for; and as those Medicines now under this Name are of some quick Efficacy, and the Consequences thereof in many Instances very great and surprizing; the most violent Pains sometimes arising from pent up Wind, which immediately cease upon its being dispersed; for these Reasons, I say, such Medicines as give Relief in this Case are more particularly filed *Carminatives*, as if they cured by Incantment; the Complaint removed by them being so sudden, that the ordinary Manner of Operation of a natural Cause, is not easily imagined to take place so soon.

But

But howsoever this Term came into the Profession, its common Use has sufficiently determined its Meaning; to wit, that whatsoever Medicines inwardly, or Application outwardly, expels or disperses Wind, such I say are ranked under the Class of Carminatives.

How such Medicines disperse Wind may be conceived, if we do but consider, that all the Parts of the Body are perspirable. *Sanctorius*, in his *Medicina Statica*, determines all that is called Wind in the Bowels, to be such perspirable Matter as makes its escape through the Coats of the Stomach and Guts. And this likewise happens to the Muscular Parts; for such perspirable Matter often breaks out and lodges amongst the Muscles, &c. for some Time.

Now, whatsoever will rarefy and render thinner such Collections of Vapours, must conduce to their utter Discharge out of the Body, and consequently remove those Uneasinesses which arise from their Detention. And as those Things in Medicine which pass under this Denomination are warm, and consist of very light subtile Parts, it is easy to conceive how a Mixture of such Particles may agitate and rarefy those Flatulences, so as to facilitate their Expulsion; and more especially when we consider what a Help to this Purpose those grateful Sensations, which such Medicines give to the Fibres, may be; this cannot but invigorate their tonick Undulations or tremulous Motions, in so much that by Degrees the obstructed Wind is dislodged, and at last quite expell'd.

If the Obstruction is not great, as it seldom is in the Stomach, Intestines or Guts, by reason of their large Vent both upwards and downwards, the Rarefaction of the Wind upon taking such a Medicine is often so sudden, and its Discharge likewise, that it goes off like the Explosion of Gun-Powder. In fine, all Things that warm, rarefy, and attenuate the obstructed Humours, may (according to the common acceptation of this Term) be called Carminative Medicines.

Before I proceed to an Account of the Colick, it may not be thought impertinent in me to describe the Gut-Colon in a Horse, which differs from the Colon in Men, inasmuch as in the first it appears as three Guts, being (as it were) divided by two Necks, (as they are termed by *Hippotomists*,) whereas in Man this Gut is seemingly but one; and in my Opinion, the Reason the Necks or narrow Places in the Colon of a Horse are so ordained by Nature, is that the Food (which is mostly hard to digest) should not pass off before the Glands of the Intestines have taken in and suck'd up what was necessary to lubricate and make them slippery, as well as for other Reasons hereafter set down in the following Description.

The Colon
of a Horse
described.

The Colon of a Horse which (as I have said) seems to be three Guts, by reason of the two Necks, of about half a Yard in Length

Length each, is drawn up into many Cells or Purfes, by Means of two Ligaments, one of which runs along the Upper, and the other the Under Side of it, which with the Assistance of a Valve or Flap at its Beginning, hinder the Excrements either from returning back into the small Guts, or falling too soon downward, as I juſt now hinted, before the Chyle or Milky Subſtance prepared from the Food be ſent into its proper Veſſels. And indeed the *Cæcum* or Blind-Gut, which is the firſt of the three larger Guts, ſeems to be ſo contrived in Manner of a Valve to hinder the Aliment and Chyle from paſſing too ſoon into the Colon; for if the Aliment and Chyle were not in ſome Meaſure hinder'd in their Paſſage thro' theſe large Guts, the Body could not be ſufficiently ſupply'd with Nouriſhment; and thoſe who pretend that nothing can enter into the Maſs of Blood which is injected by way of Clyſter, may go on in their Ignorance: But I am ſatisfied of the contrary, for I have cured a great many People of Agues by adminiſtring the Jeſuit's Bark in Clyſters, when the Patient could not bear the Thoughts of it in any other Form.

Agues cured by giving the Bark in Clyſters.

The firſt of theſe Colons is about a Yard and half in Length, the ſecond about a Yard, and the third, or that Part which joins to the *Rectum* or Arſe-Gut, near ſix Yards in length; ſo that the Colon of a Horſe fourteen Hands high may be ſaid to be nearly eight Yards and a half long; and from it along the *Rectum* or Straight-Gut to the *Anus*, where the Excrements are diſcharged, is not above half a Yard; ſo that it is plain Clyſters operate moſtly in the Colon; tho' I muſt ſay they are given in too ſmall Quantities; for what ſignifies two Quarts of Liquor in a Gut nine Yards long, and four or five Inches Diameter in a natural State; But in the Colick it is ſo diſtended with Flatulences, that its Diameter exceeds ſeven or eight Inches, as I have frequently obſerved in thoſe dying of that Diſtemper, or which is much the ſame, the Gripping of the Guts. Now for a Deſcription of the Colick.

Clyſters ſhould be given in large Quantities.

The Word *Colick*, ſtrictly taken, ſignifies Diſorders of the Colon only; but now generally it is taken for any painful Diſorder of the Stomach, or Bowels, attended from firſt to laſt with a thick and troubled Urine, whether in Man, or Brute Creatures. And from hence ariſes the common Diſtinctions of, Firſt, a *Bilious Colick*, which ſprings from a Redundancy or Acrimony of Choler irritating the Bowels, and ſo cauſing Gripings, and generally a Lax or Scouring.

The Word Colick defined.

Firſt a Bilious Colick, what. The Cauſe.

The Cure of a *Bilious Colick* is remedied by gently purging off and ſoftening the offending Humours, which is perform'd by Lenitives and Emollients. The following Clyſter is very proper in the firſt Stage of this Diſtemper.

The Cure.

Take Mallow-Leaves, and Camomile-Flowers, of each two Handfuls; Pellitory of the Wall, three Handfuls; Flowers of Elder,

A Clyſter for the Colick.

Elder, two Handfuls; Juniper Berries bruised, four Ounces: Boil these in four Quarts of Rain Water to three; then strain and press out the Liquor pretty strongly, and add two Ounces of Lenitive Electuary; and give the Horse the whole three Quarts by way of Clyster at once; for, as I have said before, unless Clysters be injected in large Quantities, they are but of small Service.

After the Colon and Straight Gut are cleansed from Excrement by the Use of the aforesaid Clyster, it may be needful to give him the following easy Purge.

Purge in the Colick.

Take of Alexandrian Senna, (known by the pointed Leaf, Brightness of Colour, and Quickness of Flavour,) two Ounces; Liquorice-Root, one Ounce; Salt of Tartar, two Drachms; Caraway Seeds, and freshest Juniper Berries bruised, each one Ounce: Boil these in a Quart of Water to the Consumption of half; then strain and add of Lenitive Electuary, (as fresh as you can get it, for when old it is good for little,) two Ounces; and of good Canary, half a Pint. Give it the Horse in a Morning rather more than Milk-warm, and keep him warm cover'd for some Days.

Opiates dangerous in the first Stage of the Bilious Colick.

It is common in Cases of the Colick in Horses for Farriers to give *Venice Treacle, Mithridate, or Diascordium* in their Cordial, Drinks, and often in large Quantities by way of Clyster; and this in the first Stage of the Distemper; which so locks up the Cause of it in the Guts, that it is all one in Effect, as if you set the Muzzle of a Pistol to the Horse's Fundament, and let fly, in Hopes to clear the Way of all Obstructions at once.

Indeed after the Cause of the Disorder is removed by *Lenient Purgatives, Clysters, &c.* as before prescribed, it is absolutely necessary warm Opiates should be administer'd, sometimes by Way of Clyster, sometimes by the Mouth; for altho' these Sorts of Medicines are (as I have said) of such dangerous Consequence in the Beginning of the Disease, yet are they requisite to finish the Cure, and allay the Tumult of the Bowels, which otherwise ends in Super-purgation, or such a Lax or Scouring as may cause the Horse to void most of the *Mucus* or slippery Matter, which should defend the inner Membranes of the Guts from the Erosion and Acrimony of the Juices: Therefore when it is properly judged that the Cause of the Disorder is taken away, let the following Mixture be given inwardly.

A Mixture for the Colick.

Take a Quart of Canary, or for want of that a Quart of warm Beer; dissolve about the Bigness of an Egg of my Cordial Ball in it, and an Ounce of Venice Treacle, or Mithridate: To which may be added (if the Horse scour more than ordinary) One Hundred Drops of Liquid Laudanum, and the like Number of Tincture of Castor. Stir it well before you give it.

The

The Purge, Clyster, &c. may be repeated according as there is Need; but give no Opiates in the Beginning of the Distemper; for notwithstanding I have as great a Veneration for Opiates as the Gentleman who said, *If there was no Opium he would be no Physician*; yet I am satisfy'd the Secret lies in the Administration, not in the Knowledge of good or bad Drugs. And this Secret will still remain in the Hands (or rather Heads) of a very few, altho' Books upon the Subject of Physick were every Day publish'd. And no doubt the true Reason of this is owing to the indolent and sluggish Temper of Mankind, which so bewitches them, that they will not take Pains to search after Truth; Mechanicks, Mathematicks, Natural and Experimental Philosophy, being meer Bug-bears to them; so that they are contented to jog on in the old blind Road of Ignorance, and prescribe Medicines in Spight of Nature and their Stars, and without knowing or being able to give any tolerable Account of the *Modus Operandi*, a Knowledge so essentially necessary in the Cure of Diseases. These are the Men who have not the *Why* for the *Wherefore*, and whose Faith or chief Reliance is upon the Number of Drugs in the Prescription, not at all considering the Basis or principal Ingredient, to which the Cure (if any be wrought) is attributable.

During the Use of Opiates, (which may be given every other Day for two or three Turns,) it is proper to give the Horse a Solution of Gum Arabick in the Water he drinks, which may be thus prepared.

Take an Ounce of Gum Arabick: bruise it, and boil it in a Quart of Water, 'till 'tis dissolved; then mix it with half a common Pail full of cold Water, and Oatmeal; and let the Horse drink this Sort of Water Milk-warm for some Time, to wit, for a Week; and by that Time it may be supposed that the Inside of the Guts is well imbued with slippery Matter to defend them from acrimonious or sharp Juices.

I hope I need not tell the Reader that moderately walking the Horse will do him Good in the Colick, seeing that moderate Exercise is proper in most Distempers, excepting Fevers, in which the Blood is already at too high a Pitch to admit of it.

The famous Bagliwi was of Opinion that the Seat of the Bilious Colick is in the Mesentery, or what we call the Net in Brute Creatures; and therefore he order'd his Patients, when the Distemper was stubborn, to take a Journey, that the Body might be shaken up and exercised by Riding for some Days, and the Fibres of the Mesentery, which by long Pain were relaxed, might assume their former Oscillations to eradicate and expel the distemper'd Impurities; after which he orders a *Semiacupium* or warm Bath, wherein the Patient sits up to the Navel for some Time: But as this last cannot well be done for a Horse

The Gum-Arabick Water.

Exercise proper in most Distempers.

Bagliwi's Opinion of the Bilious Colick.

Horse in the Colick, tho' most certainly, if he was nearly over Head in warm Water it might be exceeding proper; yet I say, as this is scarcely practicable upon Horses, we must content ourselves with Exercise, giving them now and then an easy Trot, to shake the Guts a little, which will greatly assist in dislodging the Enemy. Permit me now to give an Account, Secondly, of the Flatulent or Windy-Colick.

Secondly,
The Windy
Colick.
The Signs.

The Flatulent or Windy-Colick shews itself by Pain in the Bowels, and proceeds from Wind pent up there, which gives the Horse such Pains and convulsive Twitchings, that he will oftentimes lie down, tumble, and start up again hastily, and strike his Belly with his hinder Feet, and stamp with his Fore-Foot and forsake his Food. These are the most common Signs of a Flatulent Colick; and the Divine Contriver of all Things hath wisely order'd (both in Brute and Human Creatures) that the *Colon* should surround the whole *Abdomen* or lower Belly, and with the *Rectum* (before described) touch all the Parts contain'd in it; so that by immediate Fomentation with Clysters, we might ease such Parts of their Maladies. I say, this we have to praise God for, as well as for the Rest of his wondrous Works.

The Cause.

The Cause (as I have said) is from pent up Wind, which for the most Part is occasion'd from the Excrement or Dung's being too long retain'd, which renders the Juices viscid and ropy, so that the windy Flatulence cannot easily break through.

I remember some Author or other that says, "Flatulences or windy Disorders are bred in the Stomach and Bowels by a vicious Fermentation, excited by a preternatural Acid in a viscid Subject, and that the Cure consists in Digestives and evacuating Medicines, together with a regular Diet."

This Description is succinct and clear, so that I need not trouble the Reader any farther, only in setting down my own Thoughts as to the Cure.

The Cure.
Back-rak-
ing what,
and how
perform'd.

First, if you suspect that the Flatulence proceeds from harden'd Dung, the Horse must be Back-raked, as the Farriers call it, which is done by anointing the Hand very well with any Sort of Oil or Butter, and by little and little fetching out his Excrements, as far as the Farrier can well put his Arm into the Fundament: But I advise every Gentleman to pitch upon a Person to do this Friendly Office, who has a Hand and Arm of the smaller Size: For some are so large and brawny, that unless the Horse was of the larger Sort, there would be some Danger of an Inflammation in the Straight-Gut, which would be of far greater Concern than the Gripes.

After the Horse has been Back-raked, in two Hours Time give him the Clyster as prescribed for the Colick.

Mr. Gibson very much extols a Clyster he presents us with for Pains in the Guts, after the grosser Excrements have been discharged

discharged by such Clyster, as I just now mention'd. His Clyster is this.

Take red Rose Leaves, two Handfuls; Tops of lesser Centaury, and Wormwood, of each one Handful; boil them in two Quarts of Water to three Pints; and in the Decoction dissolve two Ounces of Diascordium, and half a Pint of Treacle-Water or Spirit of Wine.

Mr. Gibson's Clyster for Pain in the Guts.

The Basis of this Composition lies in the Opium and other warm Ingredients of the Diascordium. So that in the main, if the Diascordium was only mixed with three Pints of warm Punch, it would be full as good as Mr. Gibson's Red Rose-Leaves, Tops of Centaury, &c. Therefore I shall humbly offer an Amendment, or rather a more proper Clyster in the Place of his, which he says, lies so cordially in the Bowels. It is this.

Take Camomile Flowers, two Handfuls; Anniseeds, and lesser Cardamoms bruised, of each one Ounce; Long Pepper, half an Ounce. Boil these in five Quarts of Water to three; and add thereto, when strain'd, three Ounces of my Cordial Ball; half a Pint of Brandy or Rum, and half an Ounce of Oil of Amber: And give it the Horse by a long Glyster-Pipe, and tie his Tail down to his Tuel for some Time.

A Clyster for Wind in the Guts.

I can see the Reader smile at finding the Cordial Ball come into the Composition of a Clyster; but he may be easy when I assure him, that there are several Things ready mixed and incorporated in that Ball, which are proper by way of Clyster; more particularly, Oil of Anniseeds is a noble Thing, by Van Helmont stiled *Solamen Intestinorum*, it is of so great Esteem and Account in the Cure of Flatulent Disorders of the Guts.

De Grey has the following Cordial Drink in the Chapter of the Colick.

Take of White Wine, a Quart; Fenugreek Seeds, Bay-Berries, and Pepper, of each four Ounces; Grains of Paradise, and Ginger, of each one Ounce; Water-Cresses, two Handfuls; Sengreen, one Pound; Mint, one Handful; stamp the Herbs, and pound the Spices, then strain it, and put to it of Live-Honey two Spoonfuls; and so give it the Horse Blood-warm.

De Grey's Drench for the Colick.

Notwithstanding De Grey's great Experience in Farriery, I think the Quantity of Pepper too great in this Mixture, to be given by the Mouth; nor do I see what Business the Sengreen, as he calls it, or House-Leek, has to do in so warm a Composition; that Herb being known, even by the common People, as an exceeding great Cooler, and it really is so, insomuch that I have seen the unskilful Application of it to a Burn or Scald, so cool and destroy the natural Heat of the Part, that a Mortification or Gangrene has been threatened for some considerable Time after it. Therefore, I think the Sengreen superfluous, and contrary to the main Intention of the Drink; unless De Grey thought he had put too much Pepper down in his Prescription,

scription, and so thought proper to cool it with the Juice of *Houfe-Leek*; but even this would be a strange round-about way of prescribing, and something agreeable to the old Family-Receipts, so much esteem'd by good Housewives, &c. But if the Horse be a Ston'd-Horse, that is troubled with the Colick or Gripes, this last mentioned Author very merrily advises he should have a Mare, especially if he is so afflicted that he cannot piss; and adds, that it prevents sundry Sorts of Sickneses and Diseases, and strengtheneth Nature.

Now *De Grey* was no Philosopher, otherwise he must have known, that the oftener any Spring is wound up to its Height, it every time loses something (tho' perhaps very inconsiderable) of its Elasticity; and for this very Reason Coition can in no wise strengthen Nature; for *Omne Animal post Coitum Hebes*.

If the Colick or Griping of the Guts cause a Stoppage of the Horse's Water, it mostly proceeds from hardened Excrements, which so press the Neck of the Bladder, that the *Sphincter Vesicae* cannot sufficiently be dilated for the Passage of the Urine: Therefore in such Case Back-rake him, and give him the Clyster for Wind as before mentioned, only adding half a Pound of any common Oil to it, which will lubricate, and make slippery the straight Gut, &c. so that the Dung may slide more easily along it.

A Clyster when the Horse has a Stoppage of Water from hardened Excrements.

There is a very proper and easily prepar'd Clyster in *Mr. Gibson's Book*, which will excite the Peristaltick Motion of the Guts, and forward the Expulsion of the Excrements. It is *Mr. Gibson's* this. "Take Beef Broth, (but in my Thoughts any Sort of Broth of Flesh,) two or three Quarts; one Handful of Salt, and half a Pound of Butter; mix, and make a Clyster to be injected very warm."

Mr. Gibson's Clyster for the same.

An Account of a Horse that died of the Farrier.

I shall close this Chapter with a History relating to the Case I am treating of; which is of a Dragoon-Horse that died of the Farrier, who (like many Men in another Profession) was ignorant of the Structure and Mechanism of the Creature, which was the Subject of his Art, as *Mr. Gibson* handsomely expresses it, in page 134 of his *Farrier's Guide*; the Story is as follows.

Mr. Gibson tells us, "that a Dragoon-Horse in the Regiment to which he belonged, after a full five Weeks March, coming to stand at his Ease, grew exceeding Costive, and had his Fundament and Sheath much swelled, and that he was committed to the Care of one, who was tolerably well Skilled in many of the common Things; but being wholly unacquainted with the Structure and Mechanism of that Creature, which was the Subject of his Art, committed a grand Mistake in giving him a strong Dose of Purging Physick. There being no Vent for a Passage of the Excrements downwards, and the Horse having no Capacity to vomit, and

"and disgorge himself upwards, was put into the most violent Agony imaginable, and at last died in strong Convulsions."

Mr. *Gibson* goes on saying, "that perhaps this Man might have succeeded in Cases of less Obstinacy, and where there was little or no Swelling of the Fundament; and that if there had been a Possibility of making the Horse vomit, he might have succeeded even in this Case: for then the Physick would have gone off that way, and after several Discharges by the Mouth, the Remainder might have gone downwards, as it oftentimes happens to Human Bodies; because the straining to vomit makes a strong Compression of the Muscles of the lower Belly, which greatly forwards the Defections by the Fundament. And therefore in some obstinate Cases, of this Nature, the best Physicians have order'd Vomits with Success. But as it is quite otherwise with Horses; and that their Stomachs are not otherwise to be moved with the strongest *Stimuli*, than only to create Sicknels, and cause them to flaver a little; Purging is not to be attempted in any stubborn Costiveness, but by Clysters."

This Account, and Mr. *Gibson's* Observations upon it, are well worth observing; and altho' he says he belong'd to a Regiment, I am sure by his Manner of Writing, that he was no common Farrier; for not one that ever I talked with, or whose Works I have read, come any thing near Mr. *Gibson's* Way of Reasoning: But on the other Hand, the Discourse of the Modern, and the Writings of the Ancient Farriers, agree in this, to wit, that they are equally a Composition of Nonsense, and unintelligible Jargon, built upon false Principles.

There are three different Sorts of Colicks more than the two I have mentioned, which are incident to Human Bodies, to wit, the *Hysterick-Colick*, the *Nervous-Colick*, and lastly the *Stone-Colick*, arising from Irritations of Stones and Gravel in the Kidneys, and urinary Passages, and causing violent Pain by Consent of Parts: But as these three Kinds are not common to Horses, I beg leave to proceed to an Account of what we call a *Diarrhæa* in Man, but a Lax or Scouring in Horses.

Three different Sorts of Colicks.

CHAP. XXV.

Of the Lax or Scouring in Horses.

I Shall not trouble the Reader with a tedious Description of the several different Kinds of Loosenesses or Scouring, by reason such Account would rather tend to Embarrass than

Edify the Reader. Therefore I shall content myself with as succinct and brief a Description as may be.

The Signs. A *Lax* or *Scouring* in Horses, is a frequent Discharge of *Thin, Watery Mucus, Phlegmy, Frothy, Fat, Colerick, Black Matter*, by the Fundament; and this is mostly with, though sometimes without Excrements; and commonly, but not always, attended with Gripping Pains in the Guts.

The Cure. If the Cause of this Distemper is any Error in the Horse's Food, Water, or Exercise, the Removal of such Cause is the better half of the Cure.

Then from whatsoever Cause the Scouring proceed, the Stomach is to be strengthened, and such Things given inwardly as absorb Acids; both which Forms I have mention'd before: However, that the Reader may not be at the Trouble of looking backwards, I shall again name some Drugs, which are proper in such Cases; and, first, I think if you give the Horse pretty well of my Cordial Ball, either by way of Bolus, or dissolved in Wine or Beer, it is as good as most Things I can order. However, lest it may be thought that I intended to make this Cordial Ball as universal as Capt. Burdon has made his Turnep Poultis, I shall offer a Cordial Stomachick Drink, (or Drench) as follows.

A Cordial Carminative Drench for the Lax or Scouring. Take *Anni-seeds, Caraways-Seeds, and Cardamoms* the lesser, of each an Ounce; *Juniper-Berries*, four Ounces; bruise the *Seeds and Berries*, and put them into five Pints of *Mint Water*; then add to them two Ounces of *Venice Treacle*, or *Mithridate*. Boil to the Consumption of half; then strain out the Liqueur, and add to it half a Pint of good *Red Port Wine*, and half a Pound of *Treacle*.

The Price. This may be prepared for about two Shillings; and he who will not lay out so small a Matter for a right good Drink for his Horse, ought to trudge on Foot: But I have one Thing to say for't; It is not so dear as Mr. Gibson's Clyster for the Lax or Scouring, Pag. 137. where he orders *three Ounces of Oil of Rue* at a Time, which will cost thirty Shillings; unless the Apothecaries can make you believe that common Oil, in which *Rue* has been infused, is as good as the *Chymical Oil*, tho' there's no Comparison between them.

The Virtues of Testaceous Powders. As to Medicines which absorb Acids, they are all the *Testacea* or Shelly Powders, such as *Coral, Pearl, Crabs-Eyes, Burnt Hartshorn, Oyster-Shells* in Powder, or the like. And if you ask for any of the first Sort, 'tis ten to one the Apothecaries will only let you have of the last, which really is no great Cheat, since it is every Whit as good as any of them, though it may be afforded for a Penny an Ounce in very fine Powder; and it should be finely powder'd, or like the rest of the *Testacea* 'tis not of near so much Service.

There

There is a very fine white Oyster-Shell gather'd upon the Sea Shores, which the London Druggists vend to their young Customers in the Country for a Groat or Sixpence a Pound : But if you throw a Parcel of large or any Oyster-Shells upon Walls or Out-houses, to blanch or whiten with the Weather, Sun, &c. the Powder of them will be as good as any ; but it must be so prepared by grinding upon a Marble with Water, that you cannot feel it gritty in the Teeth ; for unless these Powders are thus managed, as I said before, they are not of much Service.

Molten Grease is only a fat or oily Scouring, and arises from Molten Grease.
a Colliquation or Melting of the Fat of the Body.

In all Kinds of Loosenesses or Scourings the Horse's Drink should be sparing and moderate ; for if he be allow'd to take too much Liquid, it will rather encourage than abate the Flux or Scouring ; and in all his Water let him have *Gum Arabick* dissolved in it, according to the Directions given in the *Gum Arabick* Water for the wet Gripes or Colick, when there happens a Purging along with it.

It is a nice Thing to judge rightly when to stop a Looseness and when to encourage it : Therefore, in the first Place, if the Horse's Appetite be good, and that he has pretty well of Flesh upon his Back, do not immediately go about to stop his Scouring ; for it may be, and very often is the Out-let by which Nature is working off some latent Enemy, which if retained in the Blood a while longer, would bring on dangerous Distempers, as Fevers, &c. Therefore, I say, do not immediately stop the Scouring, (if the Horse take Food sufficient to withstand it,) but rather give him warm white-Water with *Gum Arabick* for a while, to try how Matters go. Yet if his Scouring continue too long, and that he purge off the very *Mucus* of the Bowels, which the ignorant Grooms and Farriers often mistake for a good Omen, when they think that the Horse's parting with such Stuff must certainly do him Service ; whereas (as I have already said) this very mucous slimy Matter is as necessary for lining the Inside of the Bowels, and defending them from sharp irritating Humours which pass thro' them, as the Chyle is to supply Nourishment to all Parts of the Body : I say, if the *Lax* or Scouring continues too long upon him, give him the following Drink.

Take Red-Rose Leaves, (or the dry'd Buds which the Apothecaries keep,) two Ounces ; Yellow Sanders, three Ounces ; Tormentil Root four Ounces ; bruise and boil these in two Quarts of Water to one ; then strain, and add of choice toasted Rhubarb in fine Powder, half an Ounce ; Syrup of dried Roses, three Ounces : Mix, and give it the Horse in a Morning Milk-warm.

We do not certainly know the Plant of which Rhubarb is the Root, tho' it is probably a Species of *Lapathum* or Dock, call'd by Herman, *Lapathum Sinense* and *Muntingius* in his

Book *De vera Herba Bullanica*, pretends to have cultivated it in *Holland*, yet I do not think he could do it to any great Perfection.

We have a Root in *England* something like the *Turkey*, or rather the *East-India Rhubarb*, called *Rhaponticum* or *Monk's Rhubarb*; but it is easily distinguish'd from the Foreign Sorts, by a slimy mucous Taste which it leaves in the Mouth, and because when it is cut it appears regularly marbled, of a Red, White, or Yellow Colour; and these Colours are disposed in a radiated Manner. This Sort, to wit, *Monk's Rhubarb* is a standing Ingredient in the Medicated Ales or Diet-Drinks intended for the Cure of the Jaundice and removing Foulness of the Urinary Passages; which it does by its deterfive Quality, for it does not come up to a Purge.

An Account
of Rhu-
barb, and its
Vertues.

The *Rhubarb* from the *Levant* is now accounted best; it is of a bright yellowish Colour, and of a Nutmeg Grain if 'tis good; tho' a deal of the best Pieces will be decay'd in every Parcel you look upon. There is some comes from *China*, and other Parts of the *East-Indies*, but not so much in Esteem as this from the *Levant*, being of a darker Colour, more foetid in Smell, and is not easily powder'd; tho' that from the *East-Indies* is more Purgative, especially in Infusion, but has not so much of the Astringent Quality so efficacious in Diarrhœas or Loosenesses, and Dysenteries or Bloody-Flux; and that Sort which is accounted the finest is very little Purgative, but is much preferable in all the Intentions of a Restraining, and for this Reason it is best in Fluxes of all Kinds.

The Purgative Quality of *Rhubarb* seems mostly to consist in its Gummy Parts, by reason it is drawn out best with watry Dissolvents impregnated with a Lixivial Salt, as Salt of Tartar, or the like; and extreme drying destroys its Purgative Quality, wherefore it is frequently order'd to be toasted on purpose to make it less Purgative, and more astringent or binding; and nothing strengthens the Stomach and Bowels more than this Drug in the Hands of a judicious Prescriber: Nor do the Kidneys lie too remote for its Influences; for it frequently passes so much that Way as to discover itself in the Colour of the Urine: And upon this Account it is good in Obstructions of the Reins and Urinary Passages, whether from Sabulous and Gravelly Concretions, or otherwise; and in the Jaundice it almost passes for infallible.

The Price.

The Price this Drug mostly bears makes the Astringent Purge for Scouring either a high or low Price; for the Rest of the Ingredients may be had for about 1s. 8d. but *Rhubarb* costs the Apothecaries (I mean the choice Sort) from 1s. 6d. per Ounce to 1s. and sometimes more. It is now worth about three Pounds three Shillings per Pound; but surely it has been cheaper when Mr. *Gibson* order'd three Ounces in a Drench for this Purpose, Pag. 137. of his Book.

After the Use of the Astringent Purge, let the Horse have some of the Cordial Ball in Red Wine or Beer, with a Nutmeg grated into it, and about an Ounce of Venice Treacle or Mithridate, and a little common Treacle to make it taste better; for, in the Main, one should study a Horse's Palate as well as a Man's, seeing they are often much sicker than human Bodies can be, by reason they cannot vomit, but with such Difficulty as is enough to destroy the very Frame and Nature of them; tho' I have heard a Farrier say he could make a Horse vomit any Time, and at last I obtain'd a Discovery of the Secret, which really is enough to make the D—— I vomit; for 'twas a Bolus made of a Sirreverence or Human Dung, begging the Reader's Pardon, which this foolish Fellow had a Way of forcing down the poor Creature's Throat with his Hand.

A Farrier's
Vomit for a
Horse,

One would be surprized to find the old Farriers prescribe such out-of-the-way Medicines, (tho' their Mixtures deserve not the Name of Medicines;) particularly in this Case. *De Grey* tells us, that a Flux or Scouring proceeds from eating Feathers, Hen-Dung, &c. and is not content 'till he has made the Horse swallow the Guts of a great Chicken for a Cure. But as the *Recipe* is not worth transcribing, I shall not trouble the Reader with it. However, lest the Astringent Purge before set down be thought too dear, I shall name an Astringent Mixture of a low Price.

Take of *Roch-Allum*, one Ounce; *Armenian Bole*, one Ounce and half; put these into a Quart of Milk, when they are powder'd, and stir it over the Fire 'till it turns to a Curd; then give it to the Horse all at once.

The Astringent
Mixture.

And I hope the Reader will remember the *Gum Arabick Water* as before prescribed, and continue the Use of it for some Time after the Looseness is stopp'd; for Example, I think a Week may be sufficient; and if an Ounce of *Burnt Hartshorn Powder* be mix'd with each half Pailfull of such medicated Water, it will still make it better, and I think no Horse will refuse dringing it.

It has been observed, that both Human and Brute Creatures which die of the Flux, especially if any Blood be mix'd with the Stools, their Intestines or Guts are mortified or gangren'd at least three Days before their Death, and it is then that Thirst is no longer troublesome, and that the extreme Parts, as the Limbs, &c. grow cold and stiff.

Mr. *Gibson* thinks the Bloody-Flux a Distemper to which Horses are not subject, and with him *Solley*; but other Authors tell us they have seen many afflicted with it; and as it is a Profusion or Superabundance of Pancreatic and Bilious Juices, which being discharged from the Sweet-bread and Gall-bladder in the Intestines, cause an Irritation and great Influx of Blood thither; I say, as this is the Case of a Bloody Flux,

I see no Reason why Horses as well as Men may not be afflicted with it.

Dysentery or Bloody-Flux Lastly, when there is Blood discharged by the Guts, give the following Powder in warm Claret, if you love your Horse, and would not lose a Hog for a Half-penny-worth of Tar.

Another Mixture or Drink for a Looseness or Flux. Take Powder of Oyster-Shells, three Ounces; Contrayerva Root, and Virginian Snake-Root, of each one Ounce; Cinnamon, and Tormentil-Root, of each half an Ounce; Saffron, and Cochineal, of each two Drachms. Powder all well, and mix for six Papers, to be given the Horse two every Day in warm Red Wine or Beer for three Days, keeping him cover'd well, and no Hay before him for two Hours after the Drink, and sometimes may be added to each Dose one Ounce of *Diascordium* with the Wine.

Celiac Passion described. Mr. Gibson mentions a Lientery or Flux when the Chyle is discharged with the Excrements, which Distemper is common in Human Bodies; and is occasion'd from the Mouths of the Lacteals being stop'd by slimy Matter, so that the Chyle cannot enter, but is forced forward, and voided with the Excrements. This Disorder in Men is sometimes call'd the *Celiac Passion*, but I cannot believe Horses are much subject to it, by reason their Exercise guards them from it.

The Cure of this Sort of Flux (according to modern Practice) is by warm Astringents only. Begin with the Astringent Purge before set down for a Lax or Scouring; after which, give the following Infusion by a Pint at a Time every Morning while it lasts.

The Infusion for a Chyle-Flux. Take Zedoary-Root, and Gentian, of each half an Ounce; Orange Peel, and Winter's Bark, of each, an Ounce; choicest Myrrh in Powder, half an Ounce; Flowers of Camomile, and lesser Centaury, of each half a Handful; Mace and Cloves, of each two Drachms; beat all these grossly together, and infuse them in a Gallon of good Red Port, if the Horse is worth it, if not you may use Strong-Beer in its Stead, tho' the first is much better if you will go to the Price of it, and have Judgment enough not to be imposed upon by the Vintners.

When you use it, which may be after two Days cold Infusion, you should add to every Dose you give the Horse about two Ounces of Syrrup of dry'd Roses, and give it Milk-warm; but lest the Apothecaries impose some other Syrrup upon you in the Place of the Syrrup of dry'd Roses, I shall set down a Recipe for an excellent Restraining Syrrup, which 'tis Pity but all Apothecaries and Farriers should keep.

An excellent Restraining or binding Syrrup. Take, Oak Bark, one Pound; Pomegranate Shells, Roots of Tormentil, and Bistort, of each two Ounces; boil them in a Gallon of Spring-Water to three Pounds, or three Pints; strain the Liquor, and let it settle 'till fine; which pour off as clear as may be. To the Liquor add Juice of Sloes, and barberries, of each

each a Pint; which boil and evaporate to one Pint; then add fine Sugar, two Pounds and boil to the Consistence of a Syrrup.

This makes a Syrrup so restringent or binding that it may be trusted to in Fluxes, even by itself where such Things are wanted, and so strengthens the Stomach and braces the Fibres, that it will in Human Bodies (especially in Children) cure Agues or Intermitting Fevers; however, a great deal of the Jesuit's-Bark may be spared, was this Syrrup contrived into all the Forms convenient for it, or the Bark made up into Bolus's with it.

Lastly, I shall close this Chapter with a Clyster from Mr. Gibson as order'd in a Bloody-Flux; tho' that Author very ingenuously confesses he never saw a Horse seized with such a Distemper, yet believes some may have it, as it is not inconsistent with the Oeconomy of that Animal.

The Clyster is this, and I think as well contrived as possible, where the Case is within the Reach of such Things; and if it don't operate when given as a Clyster, I see no Harm can accrue from its being given by the Mouth.

“Take, a Quart of Forge-Water, (the older no doubt the better;) boil in it four Ounces of Oak Bark; two Ounces of Tormentil-Root; Balaustines or Pomegranate Flowers, and Red Rose Buds dry'd, of each a Handful; and to the strain'd Decoction add three Ounces of Diascordium, one Ounce of Mithridate, and half a Drachm of Opium.”

Mr. Gibson's
Restringent
Clyster for
the Bloody-
Flux.

Inject it warm with a long Pipe, &c. but if it be given by the Mouth, which I think is the more effectual Method in such Cases, seeing (as I said before) the Cause may lie more remote within the Intestines or Guts than the Clyster can be injected with the longest Pipe of the Kind: Therefore, I say, when it is design'd for inward Use by the Mouth, you must only put in half the Quantity of the Diascordium, Mithridate and Opium, and then it will be an efficacious and safe Medicine to stop Purgings of any Kind.

I shall now proceed to give an Account of those troublesome Reptiles to which both Man and Horse are so subject, that instead of devouring us when we are dead, I am surprized they do it not while we are living, to wit, Worms of all Kinds.

CHAP. XXVI.

Of Worms, Bots, and Truncheons.

HORSES are exceedingly subject to Worms, Bots, and Truncheons. By Worms the Farriers understand those which are bred in the Maw or Stomach; but there is great Reason

Reason to believe that no Worms are bred there, though many are of a different Opinion. For, as Mr. *Gibson* observes, it is as hard for a Mouse to live and subsist under a Millstone while it is grinding Corn, as for Worms to live and subsist in the Stomach of any Animal, considering the Muscular Action of this so sensible Part of the Body, which, according to the best Accounts we have of the Faculty of Digestion, would certainly grind them to Pieces very soon. Therefore when Worms are cast up by the Mouth and Nostrils of Human Bodies, it may be supposed they could not abide the Heat and triturating Quality of the Stomach, so that they quit that Habitation, and make the best of their Way, either upwards or downwards. And I cannot say I ever took Notice of Worms vomited up, which were lively, but either dead or very near it. Yet they are often in the *Duodenum* or first of the small Guts next the Stomach, and as soon as the Creature dies they rise up thither; where being found upon opening the Carcass, it is erroneously concluded that they were bred there.

Bots.

Bots are a Kind of small short and thick Worms, with great Heads, and small Tails; they are mostly in the *Rectum* or Gut next the Fundament; as the small white Worms in Human Bodies, which we call *Ascarides*, from *ἀσκησιν* moveo, to move, so termed from their continual troublesome Motion causing intolerable Itching.

Truncheons.

Truncheons are short thick Worms of a pretty bigness, and have black and hard Heads.

A fourth
Sort of
Worms.

“ Monsieur *Salleyell* takes Notice of a fourth Sort of Worms, “ which resemble Wood-lice, only they have fewer Feet, are “ of a deep reddish Colour, velveted on the Back like a Bat, “ and made up of several Folds; and these are the Worms he “ believes are bred in the Stomach, and abiding there destroy “ all the Nourishment; so that a Horse if he be never so great “ a Feeder, cannot thrive whilst they are in his Maw.” And this Author farther observes, “ that this Kind of Worms is of “ tentimes the Occasion of a Horse's Death, by eating Holes “ through his Stomach; and tells us, that he has seen Thou- “ sands of them in the Stomachs of dead Horses.”

Now, this Account seems to contradict and thwart what I have before advanced; but if the Reader will only consider that, as the *Duodenum* or first of the small Guts is so near the Stomach, so soon as the Creature dies, and the Motion of that Part ceases, the Worms mount up thither, where there is Plenty of Feeding, though before this, that Habitation was too hot for them: And indeed it is my Opinion, that when any Creature is near dying, and that the Power of the Stomach is nearly destroyed, these voracious Reptiles make their Way to, and abide in the Stomach; for I myself have seen a young Horse's Stomach eaten quite

quite through with Worms, though opened only the Day after he died.

It is agreed by all, and a received Axiom, that *all Animals* All Animals are produced from Eggs, as all Plants are from Seeds; and these are produced from Eggs. Ova or Eggs being swallowed with the Food, and meeting with a proper *Nidus* in the Intestines or Guts of Animals, they are there hatched or brought to Life. And young Horses are like young Children, more subject to Worms than full aged, or such as are come to their Prime; by reason in the latter, the digestive Faculty is so strong that the very Ova themselves are, as it were, parboiled and destroyed; whereas in the first, this Faculty is so cold and weak, as just to produce a proper Warmth to swell the Eggs as they pass through the Stomach. Therefore when they get into the Guts along with the Recrements of the Food, they are soon brought to Life, but whether they are bred in the Stomach, or Guts, it matters not, provided we know of a safe and effectual Vermifuge, which will destroy them without doing hurt to the Animal whose Guts they are lodged in; and of this I am pretty confident, to wit, that if the following Methods and Medicines be used, they cannot fail of destroying all the Species or Breed of Worms.

The Signs are all those which appear in a Colick; and the only Pathognomonick or inseparable Symptom of the Worms whereby to know it from the Colick, is the Horse's rubbing his Tail often, as if he had an itching Humour upon him, though at the same Time he has not any.

First, give the Horse for three Mornings successively two Quarts of warm Ale-Wort; and the fourth Morning let him have the following Purging Drench.

Take of Aloes, one Ounce; Diapente, one Ounce and half; Cream or Crystals of Tartar, one Ounce; Calomel prepared, two Drachms; mix, and with Syrrup of Buckthorn, make it into a Ball, which may be wrought up to a Consistence with Powder of Liquorice.

The warm Wort is so pleasant and grateful to the Worms, that they verily swill themselves with it even so full, that they will sometimes come away with the Excrements or Dung without any other Remedy. But when the Purge comes upon them full bellied, they cannot keep their Holds amongst the Folds of the Guts, but are swept away as Trouts, &c, with a Land Flood.

After two of these Purges, and a Method prescribed, let the Horse rest a while from Medicines; the Purges may be given about a Week asunder; for Horses cannot bear Purging twice in a Week without imminent Danger of Life, or else destroying their Constitution.

In a Week's Time after the Purges, give the Horse *Æthiops Mineral*, in Manner following.

Take

The Ball to
kill Worms. Take about a Pound of my Cordial Ball, (before it be too dry;) four Ounces of *Æthiops Mineral*; two Ounces of *Coralline*, and as much Syrrup of Saffron as will make the Ball of a due Consistence, which may be about two Ounces. Beat all well together, and give the Horse about the Bigness of a large Pidgeon's Egg, every Morning and Evening before his Exercise, for a Fort-night.

An Account
of Coralline. *Coralline*, or the *Musculus Marinus* of *Dioscorides*, grows something like the Moss of Trees upon Rocks, Shells, and on Coral; the last Sort is accounted best, and may be known from the strong Marine Smell with which it is endowed, more than the other two Kinds: It is sold at most Apothecaries Shops, and is a very cheap Thing; but for its Vertue in destroying Worms, it is not, though taken alone, inferiour to many of the Shop-Compositions.

Worm-Medicines should be continued for some time, and why. I advise that Worm-Medicines be continued for a considerable Time, at least three Weeks or a Month; for if this be not done, the smaller Sort will not be destroyed, by reason they so cover themselves in the Folds of the Guts, that the Medicine passes over them; for Self-Preservation is inherent in every Creature, even from the highest Potentate to the vilest Reptile. Therefore, I say, let the Horse have of the *Æthiops Mineral*, &c. for at least three Weeks, and then it is almost impossible but the Worms must take in some of it; but if it be given for a few Days only, they will rather fast than suck up any of the Juices mixed with it.

Mr. Gibson frequently prescribes half an Ounce of *Mercurius Dulcis*; two Drachms of *Diagridium*, &c. with Aloes, for a Purge to kill Worms: But although I am very sensible that *Mercurius Dulcis* is an Excellent Vermifuge, yet the Quantity here taken Notice of I think an Over-Dose especially if two Drachms of *Diagridium* be given along with it. Therefore the Quantity is the only Objection, and is much liker to destroy both the Worms and Horse, rather than fix upon the former and spare the latter.

If you give *Mercurius Dulcis*, (which no doubt is a safe Medicine enough in good hands,) let it be in very fine Powder, and about two Drachms of it mixed with an Ounce of the Cordial Ball, and given the Horse in a Horn of warm Ale the Night before you design to purge him with the Purge for Worms before mentioned; and this is much the best Way, because the Mercury will be doing Business all Night, and mixing it self with the Juices of the Guts, so that many of the Worms will be either killed, or so disabled before the Purge operates, that they will not have Strength to withstand the Wash of it, but will float along with the Excrements and be ejected in great Numbers.

I have

I have not seen any ill Effects of giving *Mercurius Dulcis* of itself, though so long before the *Aloes-Purge* as twelve Hours; yet I must confess that a Horse, from the pendent Situation of his Head, may sooner be put into a Salivation than Man: But it is the Quantity rightly judg'd and adapted to the Horse's Strength which is the Thing; for though half an Ounce given by itself may put a Horse into a Salivation, yet shall not two Drachms be able to effect it; and thus Purgative Medicines are managed so, that they may become Alteratives; which Term I have explained in some former Pages.

Although a Horse happens to Salivate by the Use of *Mercurius Dulcis* of itself, yet is there no Danger; for, one or two Purges will take off the Running at his Mouth without Hazard; and if his Gums be sore and Teeth loose, they will mend of themselves by giving him soft Food, &c. without the Help of any thing farther than Purging him at due Intervals as aforesaid. And this I know by Experience; for I had a Horse that was very hard to purge, being the same that, in my Notes upon *Burdon*, I mention to have taken two Ounces of *Aloes*, half an Ounce of *Diagridium*, two Ounces of *Cream of Tartar*, and forty Drops of *Oil of Juniper*, with Syrrup of *Buckthorn*, and with the Addition of a Drachm of *Mercurius Dulcis*: Which Dose in reality is full much for two Horses, I mean because of the *Diagridium*. But before I order'd the Horse such a Purge, I was well acquainted with his Constitution, and what he could bear without Damage: For, in all Creatures, there is a peculiar Temperament or Disposition in some, which is not common to others, though of the same Species; and this is what we Term the *Idiosyncrasy* of Bodies, a Thing very necessary to be studied by all those who take upon them to prescribe Medicines, whether for Men or Brutes. And this is so self evident that I need not insist farther upon it: For if a Physician (only of tolerable Skill and Judgment) has been employed in a Family for any considerable Time, he can easily tell the Danger any one of them is in, even from a bare Account of the Symptoms brought him by a Servant; and I am sure that his Prognostick in such Case shall oftner hit, than even when he himself shall visit a Stranger, whose Constitution or rather peculiar Temperament or Disposition he was before wholly unacquainted with. Now to return,

As I have prescribed *Æthiops Mineral* several times in this Chapter, it may not be amiss to set down the Manner of making it, which is done in the best and quickest Method as follows.

Take of *Crude Mercury* or *Quicksilver*, and *Flower of Brimstone*, of each equal Parts; melt the *Brimstone* slowly in an Iron Ladle, and stir in the *Quicksilver* for some time till you suppose it well incorporated with the *Sulphur*; then take it off the Fire, and keep stirring while it is any thing like hot, or 'till it grows

so

so cold that the *Quicksilver* cannot precipitate or sink to the Bottom of the Pan; when this is done, and that the Mass is cold, half the Rubbing will serve it afterwards, which ought to be performed in an Iron or Marble, not in a Brass Mortar.

The common Way of preparing *Ethiops Mineral* is by triturating or grinding it in a Mortar for some Time, without melting it before-hand, as I have said; but unless the Person continue to rub the Mixture for five or six Hours together, the Mass will not be sufficiently mixed, but the *Quicksilver* will remain in larger Globules than it should be; whereas the Business is to divide the Mercurial Globules as much as may be, and then they will do most Service.

Encomium
upon *Quick-*
silver.

I could say a great deal in Praise of *Quicksilver*, which is so admirably form'd by Nature that it will intimately mix with most Metals, *Antimony*, *Iron* and *Copper* excepted; and is itself the heaviest of all Metals excepting *Gold*, which is to *Quicksilver* as four to three. Many are the Preparations from this Prodigy in Nature, if I may be allowed the Expression: For it has eluded all the Skill of the most able Chymists in all Ages, who frankly confess their Inability to fix it; and from any of its Preparations you may again reduce it into its pristine State of Fluidity by the Force of Fire; and what was just now a safe, harmless, and efficacious *Medicine*, is in an Instant turned to the rankest of Poisons, and all this from only altering its Form and Fluidity. And whosoever considers this thoroughly must allow that the Operation of Medicine is truly Mechanical; and though our finite Capacities are not able to discover with any Certainty the true Causes of Distempers; yet so far as we can trace the Operation of Medicine it appears demonstratively Mechanical: And he who at random launches into the Practice of Physick without being first thoroughly acquainted with the Properties of Body, must make strange havock with Mankind; neither can he himself have the real Satisfaction which is enjoyed by the thinking Part of our Species.

A, I have run into a Digression upon the Subject of *Quicksilver*, I cannot help taking Notice in this Place of *Antimony*, which is of such common Use, especially among Farriers, that they make nothing of giving an Ounce or two a Day for some time together.

Account of
Antimonial
Prepara-
tions.

Antimony is a heavy, solid, metallic, brittle Substance, of a Lead-Colour, with long shining Streaks, fusible or made fluid by Fire, but not ductile or malleable. It is found in *Italy*, and several of the Provinces in *France*, as *Auvergne*, *Poitou*, *Britany*, and others.

Among the Ancients, *Antimony* was used to die the *Supercilia* or Eye-Brows, &c. black; and accordingly we read in Scripture, that the wicked Queen *Jezabel*, in order to charm the King her Husband, painted her Eyes (by which I suppose

is only meant the Eye-Brows) with *Antimony*; and the Women who used that Practice are also reproved by the Prophets. And from thence it was that this Mineral got the Name of *γυναικιστον*. But altho' Quicksilver was by the Ancients rank'd among Poisons, (I mean by those who mention it, for the Name of it is not found in the Writings of *Hippocrates*, whence it is probable that it was not in Use in his Time;) yet *Antimony*, its Preparations and Vertues are often set forth by *Galen*, *Hippocrates*, and *Diascorides*, and others of more modern Date. And about the twelfth Century, a German Benedictine Monk, viz. *Basilus Valentinus* published a Book under the Title of *Currus Triumphalis Antimonii*, wherein he extols the Virtues of that Mineral, and its Preparations, in the Cure of an infinite Number of Diseases. And in the Century following, *Paracelsus* made the Fame of *Antimony* become still more universal. However, Physicians, for some Time afterwards, with great Warmth and Virulence disputed concerning the beneficial and deleterious or poisonous Qualities of this Mineral; but at present all agree, that the Preparations from it are very powerful and safe, (provided they are in good Hands;) and acknowledge two Vertues in it which depend upon its different Preparations, one operating either by *Vomit* or *Stool*, the other by *Sweat*; for, in Fact, all Medicines prepared from *Antimony* do either purge upwards or downwards, or are Diaphoretick and Sudorifick.

Wards Pill and Drop are most certainly Preparations from *Ward's Pill* *Antimony*; and I could easily tell the Reader of a *Pill* and *Drop* and Drop *Antimony*; and I could easily tell the Reader of a *Pill* and *Drop* Preparations from *Antimony*. *Drop*, of like Operation with those Quack Medicines, which may be prepared from Antimony, but as no one Medicine can suit all Constitutions, tho' many that are robust and strong may for a while stand the Shock of these violent Emeticks, &c. and find Relief for the present; I say, for this Reason I forbear the Mention of any Medicine as a Catholicon rather choosing to treat of Distempers in a Way different from the Gentlemen who ride Post for Bread, and stuff the News-Papers with their fulsome Nonsense.

I shall close my Remarks upon this valuable Mineral in Physick, with taking Notice, that in a Manner all the different Preparations from *Antimony*, how severe soever they are alone, may be so managed in a skilful Hand, as to operate little, or perhaps not at all in the *Primæ Viæ* or first Passages, which are reckon'd the *Stomach*, *Intestines*, and their *Appendages*; nor will their Operation be perceived until they arrive at the smallest Passages. And it is then those mighty Things are to be effected which cure the *Gout*, *Pox*, *Evil*, &c. in Men, which are too much the *Opprobrium Medicorum*; as also the *Farcin*, &c. in *Horses*. And it is certainly the want of this Knack of converting the most efficacious *Catharticks* into *Alteratives*, that

that makes the common Practice in chronic Cases so little to the Purpose. And no doubt but at this Time there are in the Hands of some Empiricks, Medicines upon this Basis which are too much a Shame to Learning and Education. But how can it be otherwise, when Practice is calculated rather for the Ease and Dispatch of a great deal of Business, than to cure Patients whereby Cases of Difficulty are not worth the Care of any but Quacks, and such as venture at Random. I now beg the Reader's Pardon for this Digression, and I hope he will the more easily grant it, by reason that *Quicksilver* and *Antimony* have so large a Share in Medicine, and may be managed and contrived so as to answer very different Purposes. Now to return to the Worms in Horses.

I believe I need not name any more different Forms of Medicines for the Worms, seeing what I have said before is abundantly sufficient, if the Owner of the Horse have but Patience enough to continue the Use of the Prescriptions for a considerable Time, by reason the Guts of a Horse are no less than thirty five Yards long from the Stomach to the Fundament.

Sublimate
Mercury
and Precipitate of dangerous Effects, if given inwardly.

Some Farriers use *Black-Soap*, *Alum*, *Burnt Vitriol*, and the like, to kill Worms; nay, they even venture to give *Sublimate Mercury*, and *Precipitate*; which is certainly a most erroneous Practice, especially the two last Preparations are exceeding dangerous. For *Sublimate Mercury* is a most deadly Poison; and altho' the Quantity may be so proportion'd that its Effects shall not immediately be felt; yet the poor Horse's Constitution and Habit of Body must be very much weaken'd and impair'd by it. And as to *Precipitate*, tho' it is sometimes in obstinate Cases (when deflagrated with Spirit of Wine) given inwardly, yet I advise every one to be cautious in the Use of such Things.

Now altho' the famous Worm-Doctor, Mr. *John Moor* (who pretended to a Secret against Worms, tho' as long as the *May-Pole* formerly in the *Strand*) were yet in being, I am confident that *Mercurius Dulcis*, and the *Æthiops*, are as good Medicines to destroy those troublesome Creatures as any Composition he was able to find out. And as this Gentleman happen'd to die just at the Time I am treating of Worms, for which his *Pestle* and *Mortar* in *Abchurch-Lane* made so much Noise, I shall conclude with a Prediction of the justly celebrated Mr. *Pope*, relating to this so immortal Man, which is, or will in a very short Time, be fulfill'd.

O! Learned Friend, of Abchurch-Lane,
Who sets our Intrails free;
Vain is thy Skill, thy Power vain,
Since Worms will eat even Thee.

C H A P. XXVII.

Of Pain in the Bowels from sudden Accidents.

BY Pain in the Bowels from sudden Accidents I would be understood to mean those Disorders, which are occasion'd thro' the Carelessness of the Owner, Hostler or Groom, who give them cold Water while they are hot, nay, perhaps, ride them into it up to the Mid-side to wash them, rather than be at the Pains to heat a little to clean the Legs from Dirt, &c. and in about an Hour's Time afterwards to rub them dry, which certainly is the best Way to manage a Horse after a hard Day's Work. And it is by the Omission of this last Piece of Advice, that many of those serviceable tho' dumb Creatures turn Broken-winded, Phthificky or Consumptive, or else are greased intolerably. But as the Brain, Lungs, and Guts are from their Situation and Make most susceptible of Impressions; I say, for this Reason these Parts are mostly the Scene of Action when the Pores are suddenly stopp'd by Cold, &c.

Washing a
Horse's Legs
with warm
Water bet-
ter than
cold.

It would be thought an incredible Story to some, if I should tell them, that *insensible Perspiration* or the Matter which we lose by a Kind of insensible Sweating has been proved beyond Contradiction to exceed all the other Evacuations by Stool, Urine, Spitting, &c. put together; and that in *Italy*, as *Sanctorius* very accurately observed, this insensible Perspiration is so great, that in fifty one Days a Man loses that Way, viz. thro' the Pores of the Skin, even the Weight of himself. And I am sure that a Horse must lose more in Proportion to his Bulk by insensible Perspiration than Man, by reason that the other common Evacuations are not enjoy'd by him in so great a Degree as in us; particularly the Evacuation by the Mouth is much less in a Horse than a Man: And if Nature be overburthen'd, this Creature cannot discharge himself by Vomit; therefore is he furnish'd with a Hide exceeding porous in order for a Discharge of any peccant or offending Matter which might disturb the Vital Flame. And that this is the Case is plain from the Uses such Leather is put to; for it is not of so firm a Contexture as to serve for Shoe-Soals, or the like.

Insensible
Perspiration.

The Subject of *Insensible Perspiration* is most certainly of the utmost Concern, and ought thoroughly to be understood both by Physicians and Farriers; and they ought not only to acquaint themselves with the Nature of this Evacuation, but likewise thoroughly to know by what Means it is to be promoted or lessen'd, according to the several Exigences of the Creature they have to deal with, either for the Preservation or Recovery of Health.

Insensible

Insensible Perspiration is either made by the Pores of the Body, which is all over perspirable, and cover'd with a Skin like a Net; or it is perform'd by Respiration thro' the Mouth, which last in a Man in Health amounts to about half a Pound in the Space of twelve Hours, as has been made appear by breathing upon a Glass for that Time.

Insensible
Perspiration
hindered,
causes Gri-
pings, &c.

By the Pores we are to understand the excretory or discharging Ducts or Pipes of the cutaneous Glands, or Glands of the Skin, both those internal, as of the Guts and *Viscera*, and the common coverings of all the Muscles; as well as the external Pores of the *Cuticula* or outward Skin. And Nature has so provided, that if by any external Cause, this necessary Evacuation is hindered in any one Part, it is always increased in another, or else a Distemper will ensue; for which Reason, when the Coldness of the external Air (which more immediately affects the outer Skin) lessens the *Insensible Perspiration* that Way, either the sensible Evacuations are increased, as commonly the Urine; or else greater Quantities are carried off by Respiration from the Lungs and Parts about the Mouth; or, lastly, perspired into the Cavities of the Guts; which afterwards are discharged by breaking Wind either upwards or downwards: For, as long as the Impulse within remains the same, wherever there is the least Resistance, thither will always the greatest Derivation of perspirable Matter be. And from hence it is, that we so frequently find (when the Body is more than usually exposed to external Cold), *Gripings*, and great Uneasinesses in the Bowels, which proceed from nothing else but because some Part of the perspirable Matter, that ought to have pass'd the outer Skin, finding an opener Passage within, is thrown off that way. And to this purpose it is likewise very observable in Dogs, whose outer Skin is very little porous, *viz.* in hot Seasons, and upon much Exercise, whereby the more than ordinary Motions of the Body occasion greater *Attritions* or Frettings off, of their circular Fluids, which produce larger Quantities of perspirable Matter, that these Creatures throw off a vast deal from their Lungs in Respiration and the parts about the Mouth, insomuch that their very Breath appears like thick Smoke.

Leavenhoeck pretends by the help of his Glasses, (though we have better now than ever he had, thanks to the Incomparable Sir *Isaac Newton* for the Improvements;) I say, this nice Discoverer shews the Texture of the *Cuticula* or outward Skin to be Scaly, and that those Scales cover one another in several *Laminae* or Plates, more or less according to the different Thicknesses of the Scarf-skin in the several Parts of the Body; and in the Compass of one Cuticular Scale he reckons there may be 500 Excretory or discharging Channels, and that a Grain of Sand will cover one Hundred twenty five Thousand Orifices, through which we daily perspire.

In

In Human Bodies when Perspiration is hindered by any Accident, as Cold, &c. nothing comes up to warm Bathing for promoting this so necessary Discharge. For by it the Internal Bowels are refrigerated, according to *Sanctorius's* Expression, and in Nephritick or Gravel Pains, it has not its equal. Therefore as Colds are so common and frequent amongst us, it is pity (especially for the Use of large Families, who do not reside near the naturally warm Baths, or the City of London;) I say it is pity we have not more Conveniencies for Artificial Bathing, when Cases of the utmost Consequence require it.

Warm Bathing promotes Perspiration, and is good against Pains in the Bowels, and Gravel in Men.

What I have ordered before in the Chapter of the *Colick*, is mostly proper for Pains in the Guts from sudden Accidents. However, I shall order a proper Drink for the Purpose, and then proceed to take an Account of the *Yellow*s or *Jaundice*.

The Cure of Pains in the Guts from Accidents.

First then, let the Horse be taken into some warm Place; where you can fire some Straw or Furz near him, and turn him about it, so that he become pretty warm; when this is done, and his Stall well bedded, let him have the following Drink.

Take *Venice Treacle* or *Mithridate*, two Ounces; *Matthew's Pill*, two Drachms; *Camphire*, six Grains: Mix and dissolve them in a Quart of *White-Wine* or *Beer*; and give it the Horse, keeping him warm clothed for 48 Hours after.

A Drink for Pain in the Guts from Accidents.

I own to have Copied this from Mr. *Gibson*, though I have not put in his whole Quantity of *Mithridate*, or *Venice Treacle*; thinking it rather too much; and if to the Drink abovesaid, be added a little of the *Cordial Ball* it may be still better.

The Drink, or as the Farriers call it, this Drench, is well contrived, and the *Camphire* makes it a very powerful Diaphoretick or Promoter of Sweat; for it is the most Efficacious of that Kind yet known in the whole *Materia Medica*; its great Subtilty defusing it through the very Substance of the Parts, as soon almost as the warmth of the Stomach sets it in Motion: But its greatest Heat requires plentiful diluting with small Liquors. Therefore, let the Horse have warm white Water offered him now and then, that Sweating may be encouraged.

Camphire a Diaphoretick.

The Drops which make so much noise now a Days, by the Title of *Bateman's Pectoral Drops*; are nothing but a Composition of *Spirit of Wine*, *Opium*, and *Camphire*. And from hence it is they ease Pains and promote Sweat. But nothing of the Kind should be used without good Advice; seeing that those Things which are the most Efficacious Medicines, in some Cases may, in the Hands of the ignorant and vulgar, turn to a very bad Account.

Bateman's Drops, what they are compounded of.

If the Horse be bound in his Body, let him have the Emollient Clyster prescribed for the *Colick*, and cause him to retain it as long as possible, by holding his Tail down to his Fundament.

A Clyster.

Mr. Gibson
advises to
bury a Horse
in a Dung-
hill, when
pain'd in the
Bowels.

Mr. Gibson orders a Horse that has Pain in his Bowels, occasioned by sudden Accidents as aforesaid, to be buried in a Dunghill all but the Head, for that no one Thing requires Sweating more than this, and that it may be suspected, the Horse from drinking cold Water while he was hot, may prove foundered in his Chest. And this Author imagines the Case is so, because the Horse works and heaves in his Flanks all of a sudden, after such Accidents and Mismanagement.

Now I take this Heaving of the Flanks to proceed from his inward Heat; for when the Pores are so suddenly closed up by the cold Water, and the perspirable Matter hindered from flying off that way, very great Changes must of Consequence happen in the Blood, by the Mixture of such heterogeneous Particles, which raise a Fever with great Sickness and Fainting; and when any Creature is sick or faintish, they breathe shorter and thicker, which as I apprehend is the Reason of the Heaving, and not any Thing that strikes to the Horse's Heart, (as the vulgarly received Opinion goes) which causes foundering in the Chest.

As to burying in a Dunghill, according to Mr. Gibson's Method, I cannot think it will have any better Effect than what I before advised, to wit, making a Fire of Straw or Furz in some Place, so that you may turn the Horse round about near it, and with Cloaths put him in a Sweat as much as if he was buried in a Dunghill.

CHAP. XXVIII.

Of the Yellowws or Jaundice.

THE *Jaundice* or *Yellowws* is a Distemper, to which both Man and Beast are exceedingly subject; and notwithstanding this, some Authors upon Farriery omit the mention of it; more particularly Sir William Hope, in his *Compleat Farriery*, never names the *Yellowws* in Horses, that I can find.

The Signs. The Signs or Symptoms of the *Yellowws*, are a Dullness or Sluggishness of the whole Body, the Horse seems to breathe with Difficulty, his Heart beats slower than when he is in Health; *Lastly*, he loses his Appetite and becomes poor, lean, and liker a Dog-Horse than one fit for Business; and the Inside of his Eye-Lids and Eyes themselves appear Yellow; also Saffron-coloured Urine, &c.

The Cause. The Cause of the *Yellowws* or *Jaundice*, is often from a Stone in the Gall-Bladder, or rather the *Ductus Communis Choledochus*, or common Gall-Pipe, or else in the *Ductus Cysticus*, or *Porus Bilaris*; which two last when they unite, form the common Gall-Pipe, that empties out the Bile or Gall into the lower Part of the first of the small Guts. So that when any of these are obstructed

obstructed or stopped up by fabulous or gravelly Matter, or by any slimy or viscous Substance, the Gall or Bile is forced into the *Vena Cava*, instead of Passing into the Guts.

The Use of the *Bile* or *Gall* is designed by Nature to blunt or sheathe the Acids of the Chyle; because they, being entangled with its Sulphurs, thicken it so that it cannot be sufficiently diluted by the *Succus Pancreaticus* or Juice from the Sweet-Bread, to enter the Lacteal or milky Vessels. And this appears not only from the *Analysis* of the Bile, which yields more of a *Lixivial* than of a *volatile Alkaline Salt*, but also from what has been found by Experiment, to wit, that of the great Quantity of Acid Salts amongst the Aliments in the Stomach, there never could be found any in the Chyle, after it had pass'd the *Duodenum* or first Gut: And because some Chyle is always passing thro' the *Duodenum*, it was necessary that the Bile or Gall should be continually poured into it by the *Ductus Hepaticus*, otherwise called *Ductus Choledochus*: And a greater Quantity of Aliments requiring a greater Quantity of Bile, it is contrived by the *Divine Artificer*, that the Stomach should press the Gall-Bladder according as it is distended, and requires the Mixture of that Liquor.

The Use of
the Bile or
Gall in Ani-
mals.

Secondly, the *Yellow*s or *Jaundice* proceeds from Obstructions of the Hepatick or Liver Glands, which prevent the Gall from being duly separated by them from the Blood. And sometimes, especially in Human Bodies, these Glands are so indurated or hardened, as never afterwards to be opened, but elude the Skill of the ablest Physicians, and resist the Force of the strongest Deobstruents. Nay, these Glands are often in hard Drinkers, so parboiled by the long continued use of spirituous Liquors, of which we may reckon Wine and Ale two, (although the *Legislature* at present rank these under another Tribe;) I say the Glands of the Liver which separate the Bile, are in these Cases so stopped, that they straiten the Motion of the Blood through that *Viscus* or Bowel, and that to such a Degree as forces it so strongly into the Gastrick Arteries, (which go, or branch off from the *Hepatick*,) that it breaks thro' into the Stomach. And from hence it is that such Unfortunates are subject to vomit Blood, in the last Stages of their miserably spent Lives; for this Symptom is a very fatal One, I can assure them, and such as does not admit of a Cure.

Hard drink-
ing what it
Causes in
Human
Bodies.

If the Jaundice succeeds the Colick, as is often the Case, then The Cure, it is proper to give the following Mixture.

Take Turkey Rhubarb in Powder, one Ounce and half; Eng- A Purge
lish Saffron in Powder, two Drachms; Aloes called Succotrine, for the
one Ounce; Syrrup of Buckthorn, as much as is sufficient to make it Jaundice.
into a Ball; which may be given the Horse in a Morning, and
about a Pint of warm Ale upon it.

You must not expect that this Purge will operate much, nay perhaps not at all in some Constitutions; yet it will do great Service in the Jaundice, by promoting other, though insensible Discharges, as well as carry the Distemper off by *Urine*. But if *Rhubarb* be thought too dear or chargeable, it may be omitted, and more *Aloes* added. Yet the Medicine cannot be so effectual by such Management; and, I can assure the Reader, I study as much as possible, not only such Drugs as are most serviceable in the Disorders I treat of, but likewise the Charge of each Prescription, that it may not exceed the Bounds of Horse-Physick.

If the *Yellows* or *Jaundice* comes of itself, the Colick not preceding, give the Horse the aforesaid Purge with *Rhubarb*; after which let him have the following *Infusion*.

Infusion
for the
Jaundice.

Take Salt of Tartar, two Ounces; Turmeric, three Ounces; Saffron, and Soap of Tartar, of each half an Ounce; filings of Iron, three Ounces; mix these in about a Gallon of Ale, and infuse for three or four Days in a Stone Bottle, or the like, giving it a Shake now and then; and let the Horse have a Pint every Morning Milk-warm while it lasts, straining it off as you want it.

A great many are fond of the Ashes of burnt Broom, for the Cure of the Jaundice and Dropsy. And we meet in the Chymical Shops, with these Kinds of fixed Salts of a great many Plants, and the common Prescriptions of some Gentlemen of the Faculty, who practice in the specifick Method, take Notice of the different kinds: But such may rest satisfied that those dexterous and conscientious Artificers the Chymists, can furnish us with a *Lixivial Salt* of any Plant we want, made from the *Cineres Clavellati* or Pot-Ashes. And indeed if this was the greatest of their Impositions it would be well enough; for, let the Plant be what it will, before reduced to Ashes, the Fire brings it to that Texture and Make of Parts into which it reduces any other. So that a Salt made out of the Lixivium of any Ashes whatever, will be always the same. And they who are incredulous herein may try Experiments ten thousand Ways, if so many can be invented, but will never find any specifick Difference. And therefore, *true Salt of Worm-wood* is not more effectual in stopping Vomitings or Convulsive Twitchings of the Stomach, than Salt of Tartar; and of this I have been often convinced upon many and repeated Trials.

No specifick
Difference,
between Salt
of Worm-
wood and
Salt of Tar-
tar.

The Soap of Tartar, &c. in the aforesaid Infusion, operate powerfully upon the Obstructions in the Liver, which are the Cause of the Jaundice, and help to carry the offending Matter off by *Urine*. And as the Term Diuretick is oftener used than understood, I shall give the Reader a succinct or short Account of the Operation of Diuretick Medicines. And first,

Under

Under the Term *Diuretick*, may be comprehended all those Medicines whose most remarkable Properties appear in their Increasing the Discharge by Urine, or which are supposed to have any Power in removing Obstructions of the urinary Glands or Passages, from what Cause soever, whether *Humours, Gravel*, or other offending Matter. And in this View, Diureticks come under these following Kinds; to wit, they are either such as soften and lubricate the Fibres composing the urinary Glands and Canals, by which they yield and relax into their due Dimensions and Capacities; of which Kind are all Emollients already explained: Or they are such as by their attenuating and deterfivè Properties, rarefy and thin viscous or slimy Humours, and adhere to and carry them along in the Passages: Or again, they must be such as have a Power of so altering the Crasis or Mixture of the Humours, as to fit those to pass, which could not get through before; and of this kind is the *Soap of Tartar* mentioned, as well as all the Tribe of *Lixivials* and *fixed Salts*. But, without venturing too far, from the Compass here allotted, into the Nature of Secretion, it may be proper to take Notice, that the thinner Separations increase in Proportion to the Blood's Velocity: For the Swiftnefs of its Motion not only keeps the Parts more divided, but also brings them oftener to the secretory Orifice; and this every where is that which takes off the thinnest of the Blood at that Part. Some of the viscid and thicker Secretions requiring, for the same Reason, a vast Check of the Blood's Motion before they can be performed; that is, before the Blood has obtained such a Consistence by the Slowness of its Motion, that what is to be separated is the thickest at that Part. If therefore from any Cause the Blood does not move with its due Velocity, its Parts will attract one another, and make the whole too thick to part with any thing by the Kidneys, or at least so much as it ought. And herein Nature has in a very wonderful Manner provided against this Inconvenience, by so near Situation of the Kidneys to the Heart, that the Motion of the Blood may not be retarded when it comes to them, unless it moves slower through the Heart itself. And in such Case, it must of Consequence move slower than it should do near the Kidneys.

Diuretick
Medicines.
their Opera-
tion ex-
plained.

From what has been said it appears, that such things are Diuretick or operate by Urine, which not only stimulate the Blood's Motion, by their Irritation of the Solids and quickening their Vibrations; but are so subtilè, as to keep the Blood in as Fluid a State as possible. Therefore, *Lixivial Salts*, as *Soap of Tartar*, and the like, in the Infusion for the Yellows, is of such a Nature, that it hinders such Particles of Blood from coming into Contact which would make them cohere. And on this Account it is, that in all sluggish and viscid Habits,

where the Blood tends to too much Thickness, such things promote the urinary Discharges.

There are sundry Kinds of *Diureticks* more than what I have mentioned, but they all act in a Mechanical Way; to wit, either by Adding to the Motion of the Blood, or by Encreasing its Salts, of which Sort are all the Plants of the Mallows Kind. And Dr. *Grew*, a most faithful Recorder of Experiments of this Nature, observes more Salts to be in Plants of this Kind, to wit, such as seem of a mucilaginous or slimy Contexture, than in others which discover it more upon the Palate. And if Nature be the best Compounder, those Plants of her Production which have these Salts wrapt up in a kind of Mucilage, must be the best that can be contrived for carrying off fabulous or gravelly Concretions in the Kidneys of Human Bodies: For, at the same time that Salts are added to the Blood, by the Exhibition of Decoctions of March-Mallows, or the like; these are so enveloped or wrapt up in a Mucilage or slimy Matter, that the Ureters are not hurt by the Gravel, as it passes along from the Kidneys to the Bladder. I shall only observe one Thing more, and then return to the Yellows in Horses.

What kind
of Diure-
ticks proper
in the Gravel
in Men.

It has been a long Dispute, how some Things which manifestly pass off by Urine, can do it in so short a Time as they are often observed; especially those of the Turpentine Kind, which will very soon discover themselves by their Smell (in which no body can be deceived) in the Water. To explain which, would take up too much Room in this Place, neither does it seem greatly to our present Purpose to determine such Difficulties. However, those who have Time and Leisure may abundantly satisfy themselves in these Points, as well as how it happens that large Quantities of Liquors drank suddenly, make their Way through the Kidneys to the Bladder in such short Spaces of Time: I say an Account of this is given in a handsome Manner by Dr. *Quincy*, in his *Explanation upon the Aphorisms of Sanctorius*.

I am of Opinion, that as the Yellows in Horses mostly proceed from a Diminution or Decay of the Animal Salts contained in the Blood, therefore the Addition of such Kind of Salts must restore the Creature to Soundness of Body; and this is performed by Millepedes or Wood-lice, as well as the white End of Goose-dung; for, (as I have said before) this Part alone of the Dung contains the Animal Salt of the Creature from whence it comes; the chaffy or black terrene Part being of no Use at all in Medicine. So that if you add to the Infusion for the Yellows, a Pint of *Mellipedes* bruised, (but they should be fresh, for the old, commonly kept in the Shops, are worth little;) I say, if you add these, or a good Quantity of the White of Goose-dung, it will make the Thing still more effectual.

The

The *Jaundice* or *Yellows* in *Horses*, is very easily cured, provided the *Viscera* be sound. And they have this Advantage over the human Species, to wit, that if they have the Jaundice, it mostly proceeds from a Diminution or Want of Animal-Salts, as I have before hinted; and not from Schirrous or hard knotty Tumours of the Liver, which is common to Men, who have followed the Trade of Tippling too long, and whose Constitutions, in such Case, are almost past Help.

I am fully perswaded, that *Castile-Soap* dissolved in white Castile Soap Wine, or even in Beer, will cure most Jaundices or Yellows; tho' this indeed is from a fixed vegetable Salt wrapt up in an Jaundice. oily Substance. And I have been credibly informed, that half a Drachm of *Castile Soap* dissolved in a Glass of *White Wine* was (from some Experiment in *Bedford-House*) esteemed a great Secret for provoking *Urine* in the Jaundice and Dropsy in human Bodies.

Those, who have a Mind to try it upon a Horse in the Yellows, may mix an Ounce in two Quarts of Beer, and give it at four Times, a Pint a Day, either warm or cold 'tis equal, and let the Horse have Exercise: For the Jaundice causes a sluggish Laziness either in Man or Beast; therefore Exercise is proper to hinder the Fluids from running into Preternatural Cohesions, which was the Occasion of the Distemper.

There is not any Person, who has treated more largely and well upon the Jaundice and Diseases of the Liver in human Bodies, than my *quondam Præceptor*, whom all Europe must acknowledge one of the Chiefs of his Profession, to wit, the learned and truly worthy *Herman Boerhaave*, Professor of Physic at the University of *Leyden*.

Lastly, I advise (for it will answer when most Anti-icterick *Æthiops* Medicines, or Medicines against the Jaundice have fail'd) the Mineral Use of *Æthiops Mineral* for some considerable Time. And good in the then I am pretty sure it will do, unless the Obstructions be very Jaundice. obstinate, and the Liver grown hard and horny; in which Case nothing will be able to remove the Disease.

Before the *Æthiops* let the following Purge be administred.

Take ten Drachms of *Aloes*, one Ounce of *Cream of Tartar*, A Purge half an Ounce of *Castile-soap*, two Drachms of *Saffron in Pow-* for the der; and with Syrrup of *Buckthorn* make it into two Balls, by Jaundice. the Addition of a little Powder of *Liquorice*.

Let the Horse have one of these Doses, (I mean two Balls for a Dose) before the *Æthiops*, and I think it will be sufficient to scour off the slimy mucous Matter, which may hinder the Bile or Gall from being discharged into the Guts, and mixing with the Chyle, the Acids of which, it is by Nature designed to blunt and make smooth.

The *Æthiops Mineral* may be given in the following Manner, to wit,

*Æthiops
Mineral
Ball.*

Take of my Cordial Ball, one Pound; of Æthiops Mineral prepared as aforesaid, three Ounces; of Castile-soap, two Ounces; of living Millepedes, one Pint; of Syrrup of Saffron, three Ounces: mix, and give the Horse the Bigness of a small Egg once or twice a Day, before his moderate Exercise, for three Weeks.

I know it is a Dispute with many, whether any of the Quick-silver in the *Æthiops* taken by the Mouth, get into the Mass of Blood; and these Gentlemen bring for Argument, that the Force and heat of the Stomach are not sufficient to sublime it in order to pass that Way. However, I am convinced from manifold Experiments, that *Æthiops* is an excellent Medicine in skinny Disorders, which lye even at the outermost Skirts of Circulation. And why it should perform these Cures without any of its Particles (how minute soever) getting into the Blood; I say, this is a Mystery not to be unfolded, unless we have Recourse to a Doctrine, something like that of Sir Kenelm Digby's of the Vertues of his *Sympathetic Powder*, which he made such a Stir about, altho' it was nothing but a little calcined or burnt Vitriol, which, strewed upon the Wound, stoppt the Flux of Blood, and Nature perform'd the Cure afterwards, by Means of the Balsam of the Blood itself, which will any time do without the Help of Ointments, where the Fluids and Solids are in a healthful State; and this may be observ'd upon *Plants*, between which and human Bodies in several Respects, there is a great Analogy, to wit, that when you wound a *Tree*, by cutting away some of its Bark or Substance, in a few Years that Loss will be repaired by Nature, without any Help from the Gardener. And just thus it fares with recent or fresh and green Wounds as they are called, when they happen in a fleshy Part of the Body; for they will heal sooner of themselves, provided the Part be kept at Rest, without, than with any Application whatsoever.

I shall now proceed to the Distempers of the *Reins* and *Bladder*.

C H A P. XXIX.

Of the Diseases of the Reins, and Bladder.

I NEED not describe the *Kidneys* of a Horse, no more than any other of the Parts of this Creature, seeing it is so well perform'd to my Hand by Mr. *Snape* and others. Therefore, shall content myself with giving the Reader a short Account of their Use. And *First*,

*The Use of
the Kidneys
described.*

The Use of the *Kidneys* is, to separate the Urine from the Blood, which, by the Motion of the Heart and Arteries, is thrust into the emulgent Branches, which carry it to the little Glands,

Glands, by which the Serosity or watry Part being separated, it is received by the Orifices of the little Tubes, which go from the little Glands to the *Pelvis* or Basin in the Middle of the Kidney, and from thence it is that the Urine runs by the *Ureters*, as they are termed, into the Bladder.

The Blood, which could not enter the Glands, is brought back by the emulgent Veins of the Kidneys.

The Urine, thus separated, consists of much Salt floating in Water; and on this Account it is, that the Kidneys have their Situation so near the Heart: For had they been placed at a greater Distance from it, other Particles must have united with the Salts and aqueous or watery Particles (as in the present Situation some terrestrial ones do) and disturbed their Secretion. And this Inconvenience is hinder'd, as I sometime ago remark'd, by the Situation of the Kidneys, which are so near the Heart, that the Blood, &c. moves so quick, that such Particles are hinder'd from uniting, or coming within the Sphere of Attraction (as much as possible) of the *Urinous Salts*.

The *Ureters* are two long Pipes or Canals which come from the Basin of the Kidneys, one on each Side. They lye between the Doublings of the *Peritonæum*, and descending in the Form of an S, they pierce the Bladder near its Neck where they run some Spaces between its Coats, and then open into its Cavity.

The Ureters described,

The Cavity of the Ureters is contracted sometimes in three or four Places, more especially towards the Bladder; and human, as well as brute Creatures, such as are subject to the Gravel, have them very much wider than those, who are not subject to this Disorder. Furthermore, I have observed, upon the Dissection of human Bodies of such as were excessive Drinkers, that the Ureters have been so dilated, as to put the End of one's little Finger into them. And therefore, I think it may truly be said, that such Tipplers make their Bodies into a kind of Cullanders to percolate the Liquor between the Hogshead and the Pifs-pot. Of so little Use are they to the rest of Mankind.

The Obstruction of the Ureters by Gravel, or any other foreign Matter, causes a Suppression of Urine oftentimes very fatal; for it lyes out of the Reach of manual Operation. Therefore, when the Case is thus, most or all the Evacuations are requisite; and *first*, Bleeding, altho' the Horse has not any Fever, besides a *symptomatic* one. For, from Pain his Blood must acquire an exalted Motion; I say, for this Reason, Bleeding should be perform'd in the Beginning of the Disease, in order to give more Room for the offending Matter to pass along the Ureters.

I must confess I have been often perplexed to find out, how or in what Manner it is possible for such large Pieces of Stone

Stone or Gravel to pass from the Kidneys along the Ureters to the Bladder, when I have considered the Passages as they really are very narrow, and, in several Places, much more contracted than in others: But, that it is really so, is every Day's Experience, and best understood by those, who are so unhappy as to suffer under excruciating and intolerable Gravel-Pains; for these Unfortunates are truly sensible of the Progress which any Piece of fabulous Concretion makes from the Kidneys along their Back and Flanks till its Arrival in the Bladder. And then for the most part it is, that their violent Strainings to vomit cease, and nothing farther is to be feared but the Trouble of forcing the Piece of Stone thro' the *Urethra* by the *Penis* or Yard.

But it often happens, that such large Stones come by the Ureters from the Kidneys, that when they are even got into the Capacity of the Bladder, the Person is not able to piss them away, which to me is surprizing; seeing, as I just now hinted, the Ureters are so narrow, and the Neck of the Bladder so large. However, there is no Doubt of it but the best Way to get rid of these Stones, when they are in the Bladder, is to hold the Urine as long as we can with Safety, and then the *Detrusores Urinae* or Muscles which drive out the Urine will have more Power to force out the Contents of the Bladder. But when the Stones are of the whiter Kind or inclinable to a greyish Colour, we have Reason to fear their becoming so large that they can not pass the Ureters, &c. Therefore, those who are afflicted with the reddish Gravel resembling Brick-Dust, have less to apprehend; for I dare say this last Kind seldom sticks together in such Quantity as to form a Stone that cannot be piss'd off by the *Penis*.

Grey or whitish Gravel most likely to breed large Stones in the Kidneys, &c.

Boerhaave's Opinion of the Gravel. Signs of it in Human Bodies.

It is certain that the Kidneys in Human Bodies are, in Fits of the Gravel, affected with a true Inflammation. And this the incomparable *Boerhaave* tells us is so from the burning, pungent, and great Pain; from the small Quantity of Urine very red and fiery, or in the Height of the Distemper watry; from the Numbness of the Leg on the pain'd Side, the Pain of the Groin and Testicle, the *Iliac Passion* or Nervous Colick, the vomiting of Bile, and continual Belchings.

All the general Causes producing an Inflammation may occasion the aforesaid Symptoms, more particularly what hinders the Straining and Passage of the Urine in the Urinary Passages. And if a great Inflammation seizes these Vessels, they are often so bound up, that no Urine is made, at other Times but very little, thin, and watry; which no Doubt is a very bad Sign.

The Species and Causes of Nephritick or Gravel Pains are infinite, yet the Cure of all of them is much the same. And *First*,

The Cure. General Remedies proper for the Cure of Inflammations take Place, *viz.* *Bleeding*, *Revulsion*, and *Dilution*; and *leni-*

ent

ent *Decoctions*, *Emollients*, and such Things as resist too much Heat, should be given plentifully.

Clysters, *Fomentations*, and *Baths* prepared with *Emollients*, are (in Human Bodies) exceeding beneficial; but the two First can only be used to Horses.

Secondly A moist softning Diet or Food is very necessary, such as *scalded Bran*, *boil'd Barley*, and the like; and if the Symptoms of Pain are very violent, *Opiates* are proper; and in Human Bodies, when there is too much Vomiting, I know nothing answer better than warm *Gruel*, the *Wheys* of several Sorts, or such like, sweeten'd with *Virgin Honey*: And it has been observed, that Honey is of so penetrating and healing, or rather absterfive Quality, that it will cure even Ulcers of the Kidneys, by a continued Use of it for some Time.

If the Distemper cannot be dispersed, but continues beyond the seventh Day, an *Abscess* or Gathering, in the Kidney is to be suspected: But if the Suppuration continues long, the whole Kidney forms a Bag fit for no Manner of Use; and then a *Tabes Renalis* or a Consumption of the Kidneys commonly ensues: But if this forms a *Schirrous* or hard knotty Swelling, a Palsy or Lameness of the Leg on the diseased Side follows, which is incurable; from whence a Consumption or Dropsy proceeds.

An Abscess in the Kidney.

If a small Quantity of inflammatory co-agulated or curdled Matter sticks in the lesser Urinary Passages, it lays a Foundation, to which the Sandy Matter which supplies the Distemper being added, and growing hard, forms a Stone, and so increases it, that it is very difficultly dissolved or brought away by any Medicine.

A Stone in the Kidneys, how form'd.

I have seen Dr. *Boerhaave* lay a small Stone, taken out of a Person's Bladder, in the Ball of his Hand, which, by his pouring a Liquor upon it, dissolved and fell into Pieces very soon. Whereupon this great Luminary in the Art of Physick observed, that he was not without Hopes of, some Time or other, meeting with a proper and safe Dissolvent for the Stone in either the Reins or Bladder; but frankly confess'd that the Liquor which dissolved the Stone in his Hand, altho' it did not discolour the Skin, yet it was not safe to give the same inwardly. And I my self have try'd to dissolve small Pieces of Gravel, by putting them into several Kinds of Liquors, which sometimes answer'd my Expectation: But then such Liquors that had the greatest Power of dissolving the Stones, were not safe for inward Use. Only this I must observe, that the *Juice of Onions* approach'd nearest to the Dissolvent I was seeking after. I observe by the Experiments of a late Author, the ingenious Dr. *Hales*, that the Juice of this Vegetable is a very powerful Dissolvent of calculous Matter; and from this Hint no doubt a great many use the Infusion of Onions on it.

Juice of Onions a Dissolvent of calculous Matter. Dr. Hales's Observation on it.

Onions in White-Wine, to bring away Gravel, &c. lodged in the Urinary Passages; tho' in my Thoughts, when the Matter which composes the Stone is of the greyish Kind, as I just now said, it is very hard to be dissolved, and when grown to any Bigness in the Bladder, it is still of a firmer Consistence, lying in a Kind of *Strata* or Coverings like the Coats of an Onion, as I have often observed in those I have taken from both Men and Women, which are for the most Part of an oval Shape like the Bladder, which moulds them as they encrease in Bulk, like the rolling of a Snow-Ball.

A particular
Case.

I once, in cutting an old Man for the Stone, extracted six Stones out of his Bladder, which weigh'd one with another above an Ounce each; they were something bigger than Pidgeon's Eggs, smooth, and polish'd by rubbing against one another like so many Bullets in a Bag; and whensoever I meet with the first Stone of a smooth Surface, I am in full Expectation of more such like Companions, tho' the Number cannot, by any Trial, be ascertain'd, 'till we have extracted all we can lay hold of, and founded the Bladder very diligently afterwards.

Horses not
so subject to
the Gravel
as Men, and
why.

Horses are not much troubled with the Gravel, by reason their Liquor is most simple: But, Man, I am sorry to say it, who should be the most reasonable Part of the Creation, is most unreasonable in his Longings after very different Meats and Drinks, tho' they are so prejudicial to his Health and Well-being. And there can be no other Reason given why Man should be afflicted with so many out-of-the-way Disorders unknown to Brutes, but his riotous and luxurious Living; for rather than deny himself of his Bottle, and the Solace of his Bon-Companions, he will run the Hazard of his Health, and fill his Stomach with Crudities, and his Reins with Tartar, proper Fuel for most Fevers, as well as for the two Cousin-Germans the Gravel and Gout in particular. But, lest I write a Treatise upon the Diseases of Mankind, instead of one upon Horses, I must return to the Text.

Bleeding
proper.

I have said in general, that Bleeding and most Evacuations are necessary in Cases of Gravel-Pains, as they empty and give more Room for the Enemy to dislodge; therefore, after Bleeding sufficiently, let the following Clyster be injected very warm.

A Clyster
for the Gra-
vel in
Horses.

Take of Mallows, and Marsh-Mallows, of each three Handfuls; Pellitory of the Wall, two Handfuls: Boil these in four Quarts of Water to three; then strain out the Liquor strongly, and add of Venice Turpentine three Ounces, dissolved in the Yolks of three Eggs; Oil of Juniper, and Oil of Turpentine, of each half an Ounce; Oil of Anniseed, two Drachms. Incorporate the Oils with the Turpentine, Eggs, and three Ounces of Syrrup

of Marsh-Mallows; then mix all together for a Clyster to be given in the ordinary Way.

The Horse's common Drink should be the *Gum Arabic Water* prescribed in the Chapter upon the Flux or Looseness, and half an Ounce of sweet *Spirit of Nitre* put into his Morning or Evening Draught for three or four Days; and if this Method with moderate Exercise will not perform a Cure, the Case is very desperate, and the Horse not worth keeping.

I have known some Horses very subject to an *Ischury* or Suppression of Urine, from riding hard, without letting them stop now and then to stale; for when the Bladder is stretch'd beyond its natural Tone, The *Detrusores Urinæ* are distended to such a Degree as to lose their Power of Elasticity, and the poor Creature is very hard set to drive his Water from him. Therefore it may be judged how necessary it is to suffer a Horse to stop a little now and then upon the Road, to try if he'll piss, for Fear of such Accidents.

A Horse should stop now and then upon the Roads, and why.

When a Suppression of Urine happens to a Man or Woman, we can give immediate Relief by taking off the Water with an Instrument call'd a *Catheter*. And I have perform'd this Operation once or twice a Day for a Fortnight upon the same Person, before the Bladder has recover'd its due Tone. Three or four Times I have in my Practice (when the Sphincter Muscle or Neck of the Bladder has been so swell'd that it would not admit of passing the Instrument,) cut into the very Body of the Bladder above the *Os Pubis*, and let the Urine flow out that Way for a Month or six Weeks, 'till such Time as the Inflammation, &c. about the Neck of the Bladder was quite dispersed and gone; after which the People piss'd as well and sound as ever, and some of them are yet living, tho' it is ten Years since I perform'd such Operation upon them.

The Author's new Operation for Suppression of Urine.

I mention this Operation as it is a Method never before practised nor even mentioned in any ancient or modern Author; and really if the People I did it upon had died under my Hands, I might perhaps have been prosecuted by some malicious ill-designing People for Male-Practice; but as they all recover'd, I am out of Danger; and I would not give a Farthing for one of our Profession, who will not in desperate Cases, and where nothing can be expected but Death without some extraordinary Methods be used, move out of the common Pack-Horse Road to save a Man's Life: And I am fully perswaded, that a great many People die of a Suppression of Urine altho' they might be cured by the aforesaid Method; but the Generality of Mankind are so ignorant, that when any Man dies for want of making Water, it is presently concluded that the Gravel or Stone was the Cause; whereas they have no manner of Relation to an *Ischury* or Stoppage of Urine. I could easily account for the Reasonableness of my Operation for this Disorder,

Disorder, and show how impossible it would be for the Patient to piss under such a Paralytick Indisposition of the Bladder, as happens at such Times, if my Leisure would in any Kind permit me so to do: But if any of my Readers should (tho' I heartily wish they never may) be troubled with a Suppression of Urine for several Days, and that after the taking their Water away by the Use of the *Catheter*, the Bladder still continues insensible of the Pressure of Urine with which it is from Time to Time fill'd: I say when the Case is thus desperate, I am sure Cutting into the Bladder above the *Os Pubis* must be the only Relief, and it is both safe and successful; neither is it attended with Pain, no not even so much as that of being let Blood: For, as the Bladder is, or ought to be, pretty full of Water when this Operation is perform'd, the Parts are so upon the Stretch and benumb'd, that there is little Feeling left. Besides this, there is not any Loss of Blood, no not the Quantity of two Ounces, especially if the Operation is perform'd by a Person skill'd in Anatomy; nor are the Parts which minister to Generation in the least hurt or disabled, as I have been inform'd from several of my Patients who have undergone this new Operation. But to return.

It is scarce worth any Body's While to keep a Horse which is subject to Disorders of the Reins and Bladder. I shall therefore only add a *Recipe* or two for Pissing of Blood, after I have given a short Account of the Causes; for,

As to the Signs, every Body's Eyes will best inform them, tho' they will be hard put to it to know where the Grievance is situate; for there is often bloody Urine made by too violent Exercise without any Fault of the Kidneys, or Suspicion of the Stone, tho' the Blood which comes away in the Urine, is frequently discharged from one or both of them. And sometimes Blood is discharged from the Ureters, and sometimes from the Arteries of the Yard. A Fall or Bruise, as well as a Straining or hard Leap, as the Huntsmen term it, will also occasion Pissing of Blood.

De Grey relates a Story " of a good Gelding with which a young Gentleman was Hunting; that upon coming to a great Leap, and rid off his Wind, his Rider inconsiderately forced him to take it, which the Gelding did, tho' with much Difficulty, but with all fell and was not able to rise up but with the Help of Men: And upon coming Home the same night he piss'd Blood, whereof he died four Days after, maugre the Endeavours of three able Farriers; and being open'd, they found two Veins broken near his Kidneys, and much black Blood."

The same Author also takes Notice, that pissing Bloody Water often is occasion'd by too hard Riding, &c.

In bloody Urine, or pissing of Blood, the Intention is to ^{The Cure.} blunt the Acrimony or Sharpness of the Humours as much as possible. Therefore Milk given with *Bole Armoniac* is proper.

Take two Quarts of Milk, two Ounces of *Armenian Bole* in A Mixture Powder, and half an Ounce of *Japan Earth*. Mix, and give ^{for pissing of Blood.} it the Horse all at once.

Dr. Mayern tells us, " that he saw a Person (who discharged such large Quantities of Blood in his Urine, that he was in a Consumptive Way,) cured by drinking new Milk from the Cow every Morning; and the Way was to milk it upon a Sprig of red Mint, and whilst it was yet hot, sweeten'd with Syrrup of Quinces and a little Powder of Cinnamon; and that he recover'd and lived many Years afterwards."

Most Authors, viz. *Forestus*, *Hollerius*, *Duretus*, as well as *Hippocrates* and *Avicenna*, are very liberal in the Praise of Sheep's Milk and *Bole Armoniac*. Therefore where such Milk can be had it may be used instead of Cow's Milk. ^{Sheep's Milk preferable to Cow's Milk.}

Lastly, Hog's Dung put in Milk and strain'd is a certain Remedy, among the Country People, for their Cattle which piss Blood, or have the Mooring, as they call it: But this I put down by the Way, not having any other Authority for it than what I might hear from People who used to buy great Number of Oxen, &c. to drive into the South; and as pissing of Blood is a very common Distemper amongst such Cattle, I believe this is the best Remedy the Drovers have yet discover'd. ^{Hog's Dung esteem'd good against Bloody Water.}

C H A P. XXX.

Of the Colt-Evil, and Mattering of the Yard.

THE *Colt-Evil* is supposed to arise from Stoned Colts having their full Liberty with Mares, before they are able to cover them; but I observe most Farriers are so ignorant, that they bring under this Denomination all Diseases of the Sheath, tho' they only proceed from Dirt and Nastiness lodged there, which a little warm Beer and Butter skillfully used will remove, and cause the Swelling to disperse, as has been often experienced.

When a Colt's Yards is tumified or swell'd from whatever ^{The Cure.} Cause it proceeds, it should be fomented with warm Flannels squeezed out of the following Fomentation as warm as he can well bear it; and if he will not be easy while it is using, bind him in some safe Manner.

Take

Fomenta-
tion for the
Colt-Evil.

Take the Leaves of Mallows, and Marsh Mallows, Flowers of Camomile, Melilot, and Fumitory, of each three Handfuls; Rosemary, Origanum or wild Thyme, Southernwood, and Flowers of Elder, of each two Handfuls; Juniper, and Lawrel-Berries bruised, of each four Ounces. Boil these in eight Quarts of Water to fix. Then strain out the Liquor, and with two Pieces of Flannel by Turns foment the Parts affected as warm as the Horse will bear it, for some Time, Morning and Evening: But before you apply it, it may not be improper to add to it some common Malt or Molasses Spirit, about a Pint will be sufficient; and every Time when used, it should be kept warm over a Chafing-Dish of Coals, or it will grow colder than it should be.

When you have done fomenting the swell'd Part, the Liquor may be put upon the Herbs, &c. to keep for Use against next Day. This Fomentation may be used as a general one in all Kinds of Swellings of the Flethy Parts, only by adding more Spirits to make it penetrate deeper.

Mattering
of the Yard,
or Gonorr-
rhæa Sim-
plex in
Horses,
how cured.

Mattering of the Yard, as 'tis call'd, in Stoned-Horses is often no other than a *Gonorrhæa Simplex* in the Strictest Sense of the Word: For, when these Creatures are high fed, and do little, nothing is more common than to see them shed their Seed by thrusting their Yard against their own Belly; and if this is the Case, and you want a Cure, you must cut off his Stones, or else let him have Mares; for either of these will do it effectually.

If the Skin is fretted off a Horse's Yard by being over eager in covering Mares, it must be cured with the same Kind of Applications as Wounds in any moist Part of the Body, and when such Wounds have not been of too long standing, the following Ointment or rather Liniment is proper.

A Liniment
for a Horse's
Yard when
sore.

Take the Yolks of two Eggs; and mix with them of Venice Turpentine two Ounces, and of Honey of Roses one Ounce; stir all well together, and apply it moderately warm twice or thrice a Day with a small Bunch of Feathers tied together. And if this be perform'd for some Time, and the Yard now and then wash'd with warm Water to keep it clean, I dare say it will cure any Sore or Wound upon the Outside of it: But as this Part of the Body is of a soft spongy Nature, and is often extended and contracted, it requires some Time to heal Wounds upon it: For, as I have often said before, *Motion hinders Uniting* in these Cases, as may be found by Experience when we get a hurt upon a Joint, or have a *Kin* in the Lip, as the North-Country Phrase is; for, these Parts being of Necessity often obliged to Motion they will not give Time for the Wound to consolidate or heal. If the Sore seem to put out fungous or spongy Flesh, it should be washed now and then with a little Roman Vitrol Water, which may be prepared with half

To consume
or eat away
fungous
Flesh.

half an Ounce of *Vitrol* to a Quart of *Lime-Water*, and kept in a Bottle for Use.

Sometimes there seems to be no more than a simple Inflammation from the Horse's being too eager of covering Mares; and if so it is proper to bathe the Yard with the following Mixture.

Take *Lime-Water*, one Quart; *Sugar of Lead*, half an Ounce; A Water for mix and apply it Milk-warm, by washing the Part with a soft a Horse's Rag or Piece of Sponge dipp'd in the Liquor. Yard, when inflamed.

As to a Horse's being burnt by a Mare, as the Farriers call it, I do not say it is impossible, altho' I believe it is not very probable; for they cannot mean any Thing else by such Term than that such Horse is clap'd, or has got the *Chau-de-piss*, or hot Piss.

Now there is no manner of Doubt to be made but that such Distemper proceeds from over-heating the Genital Parts of Animals by frequent Friction or rubbing upon one another, in like Manner as you may cause Fire even by rubbing two dry Sticks together; for Fire is caused by rapid Motion, as may be seen from several Experiments, besides that of Flint and Steel. Therefore if the Genital Parts of Male or Female happen to be too much exercised in the Act of Coition or Coupling together, they may either of them have the Skin rubb'd off the Part, and Ulcers form'd either on the Outside, or in the *Urethra*: Add to this, the Corruption of the *Semen* or Seed of several Male Animals, when they mix or Couple with one of the Females of the same Species; for, this, along with the Juices which naturally ouze out of the Glands to moisten the *Vagina* or Sheath of the Female, acquires in the End such a corrosive Quality, that being imbibed or suck'd in by the Yard of the Male Animal, which may well be compared to a Piece of Sponge: I say, this fermented corrosive Liquor, when it Cause of a enters the Yard either by the Pores upon the Outside of it or by Gonorrhœa. the *Urethra* or Piss-Passage, causes what is commonly tho' erroneously call'd a *Gonorrhœa*. And if this be the Case, as undoubtedly it is, how much mistaken must that ingenious Man the late Dr. Friend have been, when he endeavours to make the *French-Pox* a new Distemper, and that the *Lepra Græcorum* and *Lepra Arabum* had not any Relation to it.

In my Opinion, the Ancients only wanted a proper Name for this Distemper; and there can be no Doubt, but if several Men use the Act of Coition with one and the same Woman, there is great Likelihood, that the thin Skin or Lining of the *Vagina* of the Woman may be fretted off in some Part or other, or at least the Parts of Generation will be so heated and inflamed, as that they will easily suppurate or discharge from the Glands call'd *Lacunæ* a corrosive *Ichor* or Ferment, which when mixed with the corrupted Seed, lodged as aforesaid in the *Vagina*.

gina or Sheath of the Female, constitutes sufficient Matter to propagate the Distemper to the next Comer, and so on *ad infinitum*, unless such Ulcers or running Sores be safely and thoroughly deterged or cleansed and heal'd, otherwise they will be re-infected.

Female first
infected
with the
Venereal
Lues.

Dogs often
clapp'd.

From what has been said, it appears most reasonable that the Female was first infected with what we now call the *Venereal Lues*, and that the Male, after the Running commenced, (tho' I think not before,) might propagate it at Pleasure. And it is with good Reason judged, that tho' one Man (as in those Times when Polygamy was no Sin) should have a Number of Wives, yet shall he be safe and secure from the Venereal Disease, provided such Wives do not contract the Distemper from another Quarter. And this may be plainly seen in stoned Horses, which have a Number of Mares, perhaps six or seven Score in a Season, yet shall they not have any running at the Yard which can be judged virulent. But it is far otherwise with Dogs, &c. which copulate so promiscuously that they heat the Bitches, and thereby get the Clap, which often turns to an inveterate Mangyness, accordingly as it shews itself in a kind of Leprosy in Human Bodies when the *Venereal Miasmata* or infectious Matter has once got into the Blood.

Dogs mostly lick themselves whole, tho' their Urine, (for the Distemper makes them piss oftener than they would do, and that is almost as often as they please;) I say their Urine washes the small Ulcers within the *Urethra*, and keeps them clean, so that no Eschars or hard Scabs can be form'd upon them to hinder the Discharge of the Venereal Venom; for, in Fact, these Eschars or Scabs, whether by Neglect or bad Management, occasion the Pox in Human Bodies by driving back the Venereal Taint, so that it soon infects the whole Mass of Blood, and destroys the soft spongy Bones, &c. *first*, but in Process of Time ruins the whole Human Fabrick. Yet more Stir and Noise is made about the Danger and Cure of the Venereal Disease, than needs be by far; for, in reality, there is no more in curing it (if not of too long standing) than in drawing Teeth, or cutting out Corns, and this with the greatest Safety imaginable, even without taking a Grain of any Medicine by the Mouth. Yet I am told, that this Disease is so terrible and frightful to the *London Apprentices*, &c. that a great many of our Profession live very comfortably from their Gains upon this one Article.

Yet I must confess these Gentlemen are at more Pains and Trouble to find out new and frightful Symptoms in this Distemper, than one need be in curing it. However, if their frightful declamatory Way of Writing has any good Effect upon Youth so as to make them lead better and more virtuous Lives, it would be Pity for any one to inveigh against them.

Therefore

Therefore at present I must desist from the Subject, and proceed to a Description of the Dropsy in Horses.

C H A P. XXXI.

Of the Dropsy in Horses.

MR. Gibson says, that all our *English* Authors, and some *Italians*, have enumerated a *Dropsy* among the Diseases of Horses; but I find Mr. Gibson has not thought Sir William Hope's Book, a third Edition of which was printed in 1717, worth his Perusal; for this Author never mentions the Dropsy as a Disease incident to Horses, altho' he hits a good Number of the Distempers which afflict this useful Animal. But then Sir William prescribes such out-of-the-way Mixtures and Applications, that to read them is enough to make one sick. So that in the main I have not read any Author upon the Subject of Horses (besides Mr. Gibson) which is worth a Farthing; I mean as to the *Methodus præscribendi* or Manner of prescribing Medicines. I own several of them, as the late Duke of Newcastle, Sir William Hope, and others, have treated handsomely with relation to the *Menage*, as the *French* call it, of this Creature; but then, give me leave to say, they were not competent Judges of the Force and Operation of Medicine. Therefore, when we peruse either the Works of the Ancients or *premier* Moderns upon the Subject of *Farriery*, we should do it with a View to gain something from their Practice and Observation upon the Symptoms or Tokens of Distempers; for as to the curative Indications, I am sure they are in a great measure very lame and defective.

The ancient
Farriers and
premier
Moderns
censured.

I cannot give a better Definition of a Dropsy than that which I was long ago taught by my much respected Préceptor Dr. Boerhaave: And tho' this Definition seems chiefly calculated (by that great Luminary in Physic) for human Bodies; yet I am satisfied it will hold good with relation to Horses, whose Arteries, Veins, Lymphaducts, &c. are conical as ours, and Matter must be indued with like Properties, whether it be found in the Shape of a Man or a brute Creature.

Dr. Boerhaave's Definition of an *Anasarca* or Dropsy, when the whole Habit of the Body is stuff'd with pituitous or phlegmy Humours, is as follows;

"As often as in the whole Habit of the subcutaneous Fat Dr. Boer-
"the *Lympha* stagnates, or is let out of the Vessels, it forms *baave's* De-
"a Dropsy; and the Signs of it are, a soft, loose Tumour of *finition of*
"the whole Body, really œdematous (or cold and watry) in *an Anasarca.*
"the Legs especially, a Desire of Drinking, the Urine thin, *The Signs.*
"white, &c.

As the Dropsy of the whole Body is by the *Greeks* styled *Lutopblegmata*, and because it proceeds from a kind of *Lymph* or Water, it may not be thought improper for my present Purpose to give the Reader a general Notion of what we mean by those Vessels of the Body, which we call *Lymphatics*.

Lymphatic
Vessels,
what.

These are slender, pellucid or transparent Tubes, whose Cavities are contracted at small and unequal Distances, by two opposite semilunar Valves, which permit a thin and transparent Liquor to pass thro' them towards the Heart, but which shut like Flood-gates upon its returning.

They arise in all Parts of the Body, but after what Manner needs no great Dispute; for without Doubt all the Liquors in the Body (excepting the Chyle before described) are separated from the Blood in the fine capillary or Hair-like Vessels, by a different Pipe from the common Channel, in which the rest of the Blood moves: But whether this Duct or Pipe be long or short, visible or invisible, it is still a Gland, while it suffers some Part of the Blood to pass thro' it, and denies a Passage to other Parts of that Fluid. Now, the Glands, which separate the Lympha must be of the smallest Kind, being invisible thro' the finest Microscope that has yet been contriv'd; but their excretory Ducts or discharging Orifices, the lymphatic Vessels, unite with one another, and grow larger as they approach the Heart; yet they do not open into one common Channel, as the Veins do; for sometimes we find two or three, nay sometimes more Lymphatics, running by one another, which only communicate by short intermediate Ducts, and which unite, and presently divide again.

In their Progress they always touch at one or two conglobate or vesicular Glands, into which they discharge themselves of their *Lympha* or watry Humour; which Liquor if chymically examined, will be found to contain a great deal of volatile but no fixed Salt, some Phlegm, some Sulphur, and a little Earth.

The Use of the Lymph may be gathered from the Consideration of the Parts into which it discharges itself, which are the *Receptaculum Chyli* in the *Abdomen* or lower Belly, and the *Ductus Thoracicus*, *Jugular* and *Subclavian Veins*, which shews very plainly, that its Use is to dilute and make perfect the *Chyle* before it mixes with the Blood.

Now the whole Lymph, which is separated from the Blood being requisite for this Use, it is plain, that there could be no Glands in the *Abdomen* or lower Belly appropriated for the Separation of the whole Lymph, but what must have had a very great Share of the Blood, which passes through the *Aorta* or large Artery arising out of the Heart, in order to separate so great a Quantity of this watry Liquor. But the Liver and Kidneys requiring likewise a great Quantity of Blood, and which for many Reasons could not be avoided, provident Na-

ture

ture chose to separate the Lymph, from the Blood which goes to all Parts of the Body, rather than appoint particular Glands for such Use in the *Abdomen* or lower Belly, which might have been more at hand, but would have robb'd the other Parts, to wit, the Liver, Kidneys, &c. of a large Quantity of Blood, and also occasion'd a very unequal Distribution of it. Now to return to the Dropsy, mostly proceeding from this Lymph when extravasated or out of the Vessels.

As the Dropsy proceeds from a kind of Weakness in the Blood, the curative Indications are only two, *viz.* a Discharge of the Water, and Recovery of the Strength of the Blood. And to this End it is of the greatest Consequence, both in human and brute Creatures, to know whether the Sick of the Dropsy be easily or with Difficulty purged; for, as I have often mentioned before, and I think hereafter cannot too often inculcate, the *Idiosyncrasy* or particular Temperament and Disposition of Bodies must first be learnt, otherwise the Prescriber will make but blundering Work on't.

Take of black Hellebore fresh gathered, two Pounds; wash, The Hellebore
bruise, and boil it in six Quarts of Spring or River Water to bore Infusion
four Quarts; then strain out the Liquor, and put two Quarts of for the
white Wine upon the remaining Hellebore, and let it infuse warm Dropsy.
in a Pitcher or the like for forty eight Hours, often shaking the
Liquor about; then strain out the Wine, and mix both the Water
and it together, which may lie kept in a Stone Bottle for Use.
Give the Horse a Pint Morn and Even Milk-warm while it lasts.

Strong Catharticks, or purging Medicines which work quick, are to be preferred to those which work milder and slower, and these are to be repeated as often as the Strength of the Horse will permit.

In human Bodies, where the alimentary Tube or Pipe from the Stomach to the Fundament, is not so long by several Yards, as in Horses, nor the Posture so inconvenient, resinous Purges Resinous
are most effectual; such as Gamboge, Elaterium, or the in- Purges good
spissated Juice of wild Cucumber, and the like, by reason they in the Drop-
powerfully irritate the Glands of the Guts, and make them sy in Men,
squeeze out their Contents, insomuch that the Patient shall have but not in
Horses.
several Stools mostly Water, tho' he drink but very little Gruel during the Operation of these kind of Purges; and therefore in human Bodies they are very serviceable to drain off the superfluous Lymph: But I fear such Things are not safe for Horses, for Reasons already assign'd under the general Chapter upon Purging, &c. Therefore, if the Legs of your Horse pit, upon the Impression of the Fingers, I mean, if they do so pretty high up towards the Hough behind, or Knee before, in such Case his Blood may be judged too weak, that is, its *Momentum* or Stroke against the Extremity of the Vessels for want of Spirits; &c. is not so strong as it ought. And therefore, upon its perpendicular

perpendicular Pressure the Parts are apt to tumefy and swell, more especially in the lower Limbs of human, and below the Houghs and Knees of brute Creatures.

The Tympany, what.

When the Waters are lodged in the Abdomen or between the inner Rim of the Belly and Guts, then the Distemper is called a *Tympany*, because the Belly in such Cases sounds like a Drum.

Ascites.

It is also termed *Ascites* by the *Latins*; and *Celsus*, the famous Physician in the Time of *Tiberius* the third Roman Emperor, tells us the only Difference between a *Tympanites* and *Ascites* is, that the *first* consists more of *Humors* and less *Spirits*, the latter of more *Spirits* and fewer *Humors*; which Distinction is pretty nice and worth Observance, tho' I don't remember any other Author to have made so accurate a Remark; for if it be really as *Celsus* informs us, it is very likely that the *Ascites* or Dropsy of the Abdomen, which consists of more *Spirits* and less watry *Humors* may be better cured by proper Medicines, than by the Operation of *Tapping*, by reason the sick Creature would better undergo the Loss of a watry than spirituous Liquor.

Every Swelling in the Legs not a Dropsy.

It is not always to be supposed, that a Horse has got the Dropsy, when he seems to have a kind of cold Swelling upon his Legs, that takes an Impression from the Finger; no, this often happens for want of due Exercise, Dressing, &c. because, as the Limbs are the most depending Part of the Body, the Blood moves in them with Difficulty, that is, it presses hardest against the Sides, &c. of the Vessels by the Force of its perpendicular Altitude; for, all Fluids press according to their perpendicular Altitude, and not according to their Quantity.

All Fluids press according to their perpendicular Altitude.

Therefore, I say, in the Limbs, notwithstanding Nature has very wonderfully contrived what we call *Valves*, in order to take off or ease the Sides of the Vessels from the perpendicular Pressure of the Blood; yet such Pressure must be greater there than in those Vessels which lie more horizontal. And this Piece of Mechanism may be plainly observed by any one of the meanest Capacity, who will be at the least Trouble imaginable to think; for, in those Tubes, into which *Mercury* or *Quicksilver* is put in order to shew the lesser Variations of the Air, viz. the Diagonal ones, the *Quicksilver* will rise and fall (if I may so say) several Inches more than in the common perpendicular Sort. And the nearer the Line, struck from the Perpendicular, approaches to a right Angle, by so much the more will the *Mercury* shew the elastick Force of the Air. And for the same Reason those People who happen to have swell'd Legs in an Evening, find them mostly fallen in a Morning, unless the Force of the Heart be very weak indeed.

The Reason why People's Legs swell in the Day, and fall in the Night.

An Ascites or Dropsy, the Manner how form'd.

There are very different Opinions about the Manner how a Dropsy of the Belly is produced. Some imagine it proceeds from the Liver which is cover'd by a thin Membrane, and that when

when this Membrane happens to be separated by a waterish Humour issuing out of the Capillary Lymphatics, *Pustules* or little Bladder sars form'd, which contain a clear waterish Lymph; and if these break, the Water falls into the Cavity of the Belly, and causes the same to swell like a Drum. Others, and particularly our Countryman Dr. *Willis*, think the Dropsy of the Belly proceeds from a Rupture of the Lacteal or Milky Vessels spread about in the Mesentery or Net of Animals. But I am rather inclined to believe, that as there are a Number of Lymphatic Vessels which pour out a watry Liquor upon the Chyle as it passes along the middle Coat of the Mesentery or Net, the Lymphatics are broke, and ouze out Water into the Cavity of the Belly, insomuch that the Guts swim in it as in a Pail full of Water. But what those Passages are by which the Waters are discharged out of the Cavity of the *Abdomen* or lower Belly into the Intestines, &c. is yet very uncertain: But it appears by Experience, that an Infusion of *Crocus Metallorum*, or what is called *Vinum Benedictum*, powerfully forces off watry Humours from the Outside of the Guts in an *Ascites* both upwards and downwards, and as if the Obstacles were removed, runs plentifully off by Stool. And the famous *Sydenham* observes, that the inner Bark of *Elder*, three Handfuls boil'd in Milk and Water of each a Quart, to the Consumption of three Pints, is as effectual as any Thing for the Cure of an *Ascites* or Dropsy of the Belly, if the Patient takes half a Pint in the Evening and the rest in the Morning; but then this diligent Observer, agreeable to Capt. *Burdon* in his *Gentleman's Pocket Farrier*, orders such Decoction of *Elder Bark* to be repeated 'till the Patient is well, so I must own the Captain had a good Precedent for his Expression.

And here I must not omit the Mention of Dr. *Sydenham's* Honesty and Candour, where speaking of a Dropsy of the Belly which he had cured, he has Words to the Effect following.

"And I with the juvenile Confidence of an unexperienced Man verily believed that I had got a Medicine that would cure any manner of Dropsy; but I found my Mistake within a few Weeks: For, soon after I was call'd to another Woman that had the same Disease, which came upon a long Quartan Ague: I gave the same Medicine, and repeated it often, increasing the Dose gradually; but having vainly endeavour'd to evacuate the Waters, the Purge not working, the Tumour of the Belly increased, and the sick Person dismiss'd me, and as I remember, recover'd by the Assistance of another Physician, who prescribed more effectual Remedies."

Dr. *Sydenham's* sincere and honest Declaration.

Now what can be more ingenuous and sincere than this Confession of Dr. *Sydenham's*, who was certainly a Man allow'd by the ablest Judges very capable of the Practice of Physic: But so far from following this glorious Example are many of your pre-

The Folly of trusting to the Judgment of young Physicians.

sent Theoretical Gentlemen, who just dispatch'd from Colleges, brimful of Diploma and Ignorance, foist their Nonsense and Absurdities upon the Publick, yet never own their Errors, but impudently and positively insist upon the justness of their juvenile and shallow Prognosticks in the Cure of Diseases, insomuch that an old experienced Practitioner has but a poor Chance of being heard, unless the Audience happen to be better Judges than are commonly met with on such Occasions. But to return.

Three Ways
of a Dropsy
being pro-
duced.

I am fully perswaded that a Dropsy in general is produced by any Cause, which may, *First*, so constrain the Seroſe or watry Liquor as to make it stagnate or stop in the Vessels; or, *Secondly*, break the Vessels, so as to let such Liquor out amongst the Membranes of the Body; or, *Thirdly*, so obstruct the Vessels that bring it back from the Cavity of the *Abdomen* that such Liquid cannot exhale, nor be absorb'd again. And these Causes are various, sometimes acute Diseases, such as Fevers, and the like; Schirrhous Tumours or hard knotty Swellings of any remarkable Bowel, such as the Liver, Spleen, &c. all extravagant Discharges whatever, especially great Losses of Blood.

I shall now set down a Prescription or two for the Dropsy in Horses, and just mention a particular Case; after which I shall proceed to an Account of what is meant by a Horse's being Hide-bound. And,

The Cure of
an *Anasarca*.

First, If the Dropsical Humour be contain'd within the Bounds of Circulation, tho' indeed there do not want Arguments to prove, that the Waters contain'd in the *Abdomen* or lower Belly of Dropsical Persons do this; I say, if these Humours are lodged all over, or, as we express it, in the Habit of the Body, it is term'd an *Anasarca*, and may easily be cured (provided the *Viscera* be sound) with Purging, and corroborating or strengthening Medicines. And first of all give the Horse this Purge.

A Purge for
the Dropsy.

Take *Aloes*, one Ounce; *Gamboge*, one Drachm; *Saffron* in Powder, two Drachms; *Cloves* and *Nutmegs*, each one Drachm; *Oil of Anniseed*, sixty Drops; Syrrup of *Buckthorn*, as much as is sufficient to make it into a Ball; which may be given in the usual Way. Only when a Horse is subject to Dropsical Humours, he should not be allow'd much Water while his Physick works, and then it will fetch off more Water.

This Kind of Purge may be prepared at once, if the Person who wants it keeps the *Cordial Ball*; for it is only working or beating up the *Aloes* and *Gamboge* when in Powder, into two Ounces of that Ball, and a little Syrrup of *Buckthorn*, if the same be too hard, will make it of a proper Consistence.

Gamboge
should be
finely pow-
der'd, and
why.

The *Gamboge* should be pounded in a Mortar that is first rubbed with a little fine Oil, otherwise its Parts will not be sufficiently

ciently divided; and if it be not, it will cause intolerable gripping Pains, by sticking amongst the Folds of the Guts.

I have said, that *refinous Purges* are not convenient nor proper for Horses, but that just now set down is sufficiently qualified with warm Ingredients which will forward its Operation with Safety. Therefore, when I spoke of the Danger of *refinous Purges*, I would be understood that such Things are so, unless duly qualified by other warm Ingredients.

Secondly, Corroborating or strengthening Medicines are indicated, which brace the Fibres of the Stomach, as well as the whole Body. And for this End I advise the following Infusion to be given every Morning a Pint for a Fortnight, letting the Horse be kept without Food for two Hours after it.

Take Gentian Root, and Zedoary, of each two Ounces; Camomile Flowers, and Tops of Centaury the lesser, of each two Handfuls; Bark of Peru commonly call'd Jesuit's Bark, grossly powdered, two Ounces; Turmeric, three Ounces; Filings of Iron, half a Pound; Annis or Caraway Seed, four Ounces. Mix these together, and infuse them in three Gallons of Ale for a Week, shaking the Vessel now and then to draw out the Vertues of the Ingredients.

An Infusion to corroborate and strengthen the Stomach.

Give the Horse a Pint of this Infusion at a Time, Morn and Even, and in a little Time the Crasis or due Mixture and Quality of the Blood will be restored, and the Horse again to his Appetite, &c.

The Case I proposed to mention was this. A very worthy Gentleman of my Acquaintance, who loves a good Horse and Hunting, had one of his Hunters under the Farrier's Care for some Disorder or other, which I do not now particularly Remember, but the Fellow was doing something about his Belly, or Inside of his Thigh, with a Knife, which either slipp'd, or upon starting, run into the Belly of the Horse, upon which there issued out a considerable Quantity of Water, and the Orifice or Hole keeping open for some Time, I was informed there might be at least six or seven Gallons of Water discharged in the whole, before the Wound closed up: But what is most remarkable, the Horse was not before this Accident supposed any Way inclinable to a Dropsy, nor did he in the least shew any Symptoms that Water might be lodged between the Guts and inner Rim of his Belly, for he did his Business as well as could be expected at his Age, which was pretty considerable: But his hinder Legs, which were most commonly swell'd or subject to *Gourdiness*, as the Dealers term it, fell to their proper Size and Dimension. And my Friend told me, that the Gelding was so well after this lucky Accident as he call'd it, that he hoped he might serve him to ride a Hunting some Seasons.

A particular Case of a Dropsy cured by Accident.

Horses much easier cured by Tapping than Men.

Now where the Waters are contain'd in the Belly, I believe Horses may be cured by tapping much safer than Men, by reason

son that the Situation a Horse is in favours the Discharge of the watry Humours thro' the Orifice made by the Instrument. Yet I could Instance many Cases where the Operation has succeeded so far both on Men and Women, that the Belly, after taking out sixteen, eighteen, nay sometimes twenty Gallons of Water at different Times, has kept down to its natural Size, and the Parties recover'd to a Miracle. But the Reason why this Operation does not much oftener succeed to the Patient's Satisfaction, is want of Judgment in the Physician or Surgeon employ'd; for if these understood their Business, they must know the different Kinds of tumefied Bellies, and easily judge by the Date of the Distemper, the Sound of the Belly, and the Fluctuation of the Waters, together with the Aspect of the Patient, and knowledge of his or her Manner of Living; I say, if these be consider'd by a skilful Person of the Profession, a pretty sure Prognostick may be form'd, whether any Thing or Nothing can be done for the Benefit of the Sick, more than prolonging Life for a few uneasy Days or Weeks.

Tapping for a Dropfy in Men, why it does not oftner succeed.

Lastly, When the Dropfy call'd *Ascites* happens to attack a hard Drinker of Spirituous Liquors, I must tell him for his Comfort, he cannot be long an Inhabitant of this World, but that his inward Parts are or soon will be so vitiated, and as it were parboil'd, that they admit of no Human Assistance. Therefore he must fall, as the merry Drinking Catch expresses it, in (or rather by) *Otober*.

Hippocrates was against tapping Men for a Dropfy.

There are various and innumerable Prescriptions set down by Authors for the Cure of Dropsies, which are compounded according to the Opinion and Skill of the Prescriber. One of Hippocrates's Aphorisms is plainly against Tapping Men for a Dropfy, tho' I fancy this divine old Man had been some Time or other frighted into the Opinion, by observing that Wounds in Hydropic Bodies were with Difficulty cured; as may be gather'd from the latter Part of the same Aphorism. Yet as I just now said, the present Practice seems to warrant the Operation.

Dr. Boerhaave's Opinion of the Dropfy in Human Bodies.

I must not omit one Thing for the Benefit of my Readers who happen to be afflicted with this stubborn Distemper. It is the Opinion and Doctrine of the truly worthy Dr. Boerhaave, communicated to me some Years ago from his own Mouth, viz. "that Hydropic People ought strictly and religiously to abstain from Drinking, and use a Diet of Bisket-Bread and Raisins, with a little Salt, and a moderate Quantity of Oily or Rich Wines."

Indeed, those sick of the Dropfy are generally so thirsty, that it is impossible for them to deny themselves of drinking Quantities of one kind of Liquor or other; so that, in the Main, they should submit themselves to Confinement under a trusty Guard, who will keep up to the Directions of a knowing Physician, and by that Means they may have some Chance, by

putting

putting a Force upon Nature, and obliging the Glands in the Mesentery (which by Abstinence from Liquor are almost as dry as Sponges before dipp'd) to imbibe or suck up the extravasated Lymph, and convey it into the circulating Channels once again, and then there is no great Fear but Medicines will have the wish'd for Effect.

There are not wanting several Instances to confirm the afore-said Doctrine of Professor *Boerhaave's*; particularly a virtuous and good Lady in *Ireland*, whose Name for Decency I forbear mentioning, cured herself (as I may say) by abstaining wholly from Liquor of any Kind for a considerable Time, during which she eat Bisket and Raisins. And in my Opinion, there is no Fear of dying for want of Liquid, seeing the Body in such Case is moist enough, and rather than the Vitals will succumb or sink under the Distemper, they will supply themselves with what is sufficient from the Waters lodged in the *Abdomen* or lower Belly: But People are now-a-days so over-fond of gratifying the sensual Appetite, that a Physician might as well stay at Home, and perhaps do the Patient more good than by prescribing Medicines which are sure to be taken irregularly, and with no due Decorum or proper Government.

C H A P. XXXII.

Of Hide-bound Horses.

A HORSE is said to be *Hide-bound*, when his Skin sticks so hard to his Ribs, &c. that you cannot with your Hand separate or loosen the one from the other, but with great Difficulty.

Several old Authors upon Farriery have omitted the Mention of this Infirmary in Horses, for this Reason, as I suppose, that when a Horse happens to be *Hide-bound*, and clung up in his Belly, they presently pronounced him *Chest-founder'd* or *Body-founder'd*: And (as I have observed before upon the Judgment of these learned Gentlemen) they were often mistaken even in what they call the *Chest* or *Body founder*: And not only the old Farriers, but likewise the present, frequently judge a Horse founder'd in his Body, when in reality the Ailment lies in the Hoof. However, the Terms *Chest-founder*, *Body-founder*, and *Hoof-founder*, are very nonsensical Terms indeed, as they do not convey to the Reader any just or true Idea of the Distemper. But to return to what we may properly call a *Hide-bound* Horse.

Besides the Skin cleaving to his Bones, his Body is lean, his Belly *gaunt*, (as 'tis call'd) and the Ridge or Back-Bones stand up, his Guts are for the most Part very deficient of Moisture,

his Further Signs.

his dung dry, hard, and ball'd, rendering an offensive Smell more than common.

The Cause.

I cannot say but that Horses fall into this Distemper mostly from bad Keeping, or Riding, and using them above their Keep, if I may be allow'd such Jockey Term; and such Disorder happens to them generally upon, or while they are at Hay; which, if not of a good Kind and well shak'd from Dust, very much conduces to render the Blood of this Animal spiritless, poor and viscid; in which State I apprehend him to be when he is Hide-bound. And when the Hay is bad, and the Owner, so like his Horse that he is Hide-bound to, stinting him of his proper and necessary Allowance of Oats, &c. For, when the Soul and Silver of the Owner are so nearly related, that he can ride his Horse hard, and keep him low at the same Time, 'tis then the Distemper is communicated, and that the Horse becomes Hide-bound and poor-spirited like his Master. However, the Cure of the first may be performed by changing the Pasture; but 'tis much to be feared the Latter will continue Hide-bound, let him be removed into whatsoever Region or Climate.

Hide-bound
Masters
make Hide-
bound
Horses.

There is one very good Observation in Mr. Gibson's Farriery relating to the Management of Dealers in Horses, as they are call'd.

This Author after having in a proper Manner told the Reader how a lean Horse is to be managed, and that when such Horse happens to be fatned too suddenly, he becomes jadish, broken-winded, Lame, or looses his Eye-sight; he then proceeds thus; "For while the main Study of those Persons" (meaning the Dealers in Horses) is only to make them fat and "plump, they soften all their Food, that it may digest soon, "and turn the sooner to Blood, and allow them no manner of "Exercise; being sensible that any such Method would soon "turn to their own Detriment."

Now, what Mr. Gibson means by *no Manner of Exercise*, must be constru'd, that he allows them not Exercise sufficient or proper to put them in a condition for a Gentleman's riding.

Most People
are Jockey's
in their Way.

Indeed, I must confess this is often the Case; and pray, where's the Cheat any more than in other Actions of our Lives? Do not all the World strive to shew their Goods, &c. to the best Advantage? Are not we all in Masquerade, from the meekest Cocker, who trims up and polishes his Work, even to the highest Statesman, who in Imitation of the Cocker, is obliged to smooth and colour over his Ends, that his ill-concerted Politicks may relish the better? Therefore, I insist upon it, that all or most People are Jockies, according to the best of their Judgments and Abilities: And that there is no more reason for Applying it particularly to Dealers in Horses, than to Dealers in any other Merchandize or Traffick.

If a Horse become *Hide-bound*, by hard Usage and ill Keep-^{The Cure.} ing, it is not properly a Disease, because it may be removed without the Help of Medicine, to wit, by good Keeping, &c. Tho' I own, the Word *Morbus* implies an unusual Circulation of the Blood, or the circular Motion of the Blood augmented or diminish'd, either throughout the whole Body, or in some Part of it.

If this Disorder be the Effect of a Fever, or of some other Disease, if *that be cured which is the Cause, the Effect will cease.* But, if the Horse have no Fever upon him, and that he is *Hide-bound* from lowness of Blood and Spirits; the Remedies prescribed for the Cure of the *Yellow*s can hardly be amiss. Therefore I must refer the Reader to that Chapter; only reminding him, that, during the Time he is fattening a Horse from Leanness, the Food and Exercise ought to be in proportion to his Strength, especially, if he design him for his own Use. But, if according to the Way of the World, he would pack of his Goods as soon as may be, and with as fair an Outside as possible, or in other Words, if he would jockey his Neighbour, he need only order a little Blood to be taken from a lean Horse, turn him to Grass, and let him fill his Vessels, &c. with crude indigested Particles, fit only to puff up his Flesh and make him Saleable. And if such a Horse be designed to fatten up in Winter, it will require a much longer Time than Summer. However, 'tis best done with boil'd Barley or the like, provided the Horse do not purge too much by such slippery Food: But you must expect he will dung soft like a Cow; and indeed if you design him for your own Service, it is best to raise his Flesh with boil'd Barley, and other Kinds of soft Food, White-Water, and the like. But again, you must have Patience with such Horse after his Flesh is raised, to harden it with good Oats, Beans, Exercise, &c. For whatsoever, either vegetable or animal Bodies, is of quick or hasty Accretion or Growth, such Body will abide least Hardship, that is, it will be sooner consumed or wasted. So that in the Main, *nothing comes up to Length of Time and good Meat for making a Horse perform his Journey strongly.* And I dare say many a Horse is, by the ignorant and unthinking Part of Mankind, deemed a Jade upon a Journey, when his Weakness is owing to Mismanagements of the Owner or Keeper, whose Inconsiderateness makes them expect Impossibilities. Proceed we now to the *Farcin*, sometimes stiled *Farcy* in Horse.

C H A P. XXXIII.

Of the Farcin in Horses.

I DO not know any Distemper to which Horses are subject, which is more loathsome or more filthy than the Farcin.

The Signs.

The Farcin is a kind of creeping Ulcer, beginning with hard Knots and Pustules, which spread sometimes over the whole Body of the Horse, like the Branches of a Vine or Ivy-Tree. I shall not trouble the Reader with a Description of the Wet-Farcy, the Dry, the Inward Farcy, the Flying Farcy, the Corded Farcy, the Yellow or Black Farcy, &c. because they are all Degrees of one and the same Disease.

The Cause.

The Cause lies in the Blood and Humours: For, as the first is in this Distemper of too slow a Motion, especially in the capillary Arteries, the Glands and secretory Ducts will be stuff'd with a kind of slimy Matter, and thereby rendered unfit to perform their proper Office of separating each particular Humour, as required by the Animal Machine.

Rusty Spur-Rowels cannot cause the Farcin.

It is absurd to imagine the Farcin can be produced from Wounds of Spur-rowels, &c. as some Authors fondly suggest; but such Writers when they mention the Farcin to proceed from rusty Spur-rowels, surely did not understand that to be hurt or cut with a rusty Instrument is not more dangerous than to be cut with a fine polish'd one; or that the Rust of Iron is an excellent Medicine given inwardly, even in the Disease call'd the *Farcin*: For as 'tis now universally allow'd by the thinking Part of our Profession, that Medicines operate mechanically; therefore if any of the Particles of Iron, or in other Words, if any of the Rust get into the Blood by the Wounds in the Horse's Sides, it must rather assist in the Cure of the Distemper, than otherwise by opening the Obstructions in the Small Capillary or Hair-like Vessels, and causing it to move more briskly and freely. Therefore if any of the ancient Farriers have observed the Farcin to succeed sore or wounded Sides from rusty Spurs; I imagine, first, that such Horses are over exercised and heated, and afterwards cool too hastily; or, secondly, that their Food has not been proportionably good as their Exercise, &c. have been violent. *For, he who rides with rusty Spurs, generally rides a poor lean Horse, which is very unfit to answer any kind of Spur, without moving beyond what he's well able to perform.*

The Farcin contagious.

It is said, the Farcin is contagious or catching, which I believe may be true, if the Matter discharged from the Sores happen frequently to fall, or be rubb'd upon another Horse. Neither can the *Effluvia* which Horses in this Distemper perspire, be without Danger, in Case such Horses stand constantly near others;

others;

others; for it may no doubt be communicated as the Itch in human Bodies, if especially the Horses lie together.

That Kind of Farcin which begins in the Head and upper Parts, is most easily cured, unless it has got amongst the Kernels of the Jaws, and towards the Ear Roots; in which Case the Glanders are threatned.

Farcin which begins in the Head most easily cured.

If this Distemper be not speedily cured, the Horse in process of Time becomes subject to many other Diseases; as the *Yellows*, *Broken-wind*, *Consumption*, &c. which still renders the Cure of the Farcin more difficult and hazardous.

Farcin causes broken Wind, &c.

When the Farcin begins in the most depending Parts of a Horse's Body, it is difficult to remove it, so as to make the Cure lasting, by Reason it is often attended with *Grease*. I shall now proceed to the Cure.

The Farcin beginning in the Limbs difficult to cure.

The Cure of the Farcin consists in removing the Lensor, or slow, languid, and sluggish Disposition of the Blood, which I suppose is much divested of its Spirits, and therefore more liable to be obstructed in the extreme Parts, or small Blood-vessels in the Skin and fleshy Pannicle.

The Cure.

First, Regard must be had to the Horse's Strength; for if he is lean and weak, Purging is forbidden; yet it is necessary to begin with a Course of Medicines of that Kind, provided the Horse is well able to withstand their Operations. Therefore I say, this must be in the Owner's or Farrier's own Breast.

Solleyfell the famous French Author, will not agree to Purging, unless the Horse be costive, or bound up in his Body, and even in that Case he does it by Clysters. But there's no doubt but Purging Medicines are proper to clear the first Passages, and lay a good Foundation for the following Medicines. However, I must not omit informing the Reader, that many poor Horses are ruined, and their Constitutions shatter'd and broken to Pieces very often, by being over-purged, according to the ignorant Directions of their ill-judging Owners, or else the Farriers who have no other Notion of the Farcin, than that it is a Disease in which the Blood is full of Corruption, and that the Purges they prescribe have an elective or specific Property of carrying away such corrupted Matter with the Dung; and therefore they continue Purging the Horse 'till the very mucous Substance of his Guts is wasted.

Monfieur Solleyfell against Purging for the Farcin.

I shall not undertake in this Place to shew that there is no such Thing as Elective-Purgation, otherwise than as I have mention'd before under such general Head.

If the Horse troubled with the Farcin be full of Flesh, let him be first bled sufficiently, then purged with the common *Aloes Purge*, before prescribed for the *Dropsy*, Chap. xxxi. and let this be repeated with a due Regimen for two or three Times at proper Intervals, which cannot be less than a Week: For altho'

Bleeding and Purging when proper.

Horses
should not
be purged
oftener than
once a
Week.

What Me-
dicines pro-
per for a lean
Horse in the
Farcin.

A Ball for
the Farcin.

tho' a Man may be purged every other or third Day, for some Time without Danger, yet I am satisfied, if you purge a Horse oftener than once a Week, you run great Hazards of killing him, or destroying his Constitution.

A lean Horse in the Farcin does not require Bleeding or Purging, but rather a Course of *Sudorific*, or Sweating and alterative Medicines. Therefore, whether the Horse troubled with this Distemper be fat or lean, the following is a proper Ball to be continued for the Space of three Weeks or a Month.

Take Native *Cinabar*, four Ounces; Gum *Guaiacum*, one Ounce; *Zedoary Root*, and *Galangal*, of each half an Ounce; *Diaphoretic Antimony*, one Ounce; *Venice Treacle*, three Ounces; mix these up with a Pound of the Cordial Ball. If it be too hard it may be softened with a little Syrrup of *Saffron* or the like, giving Allowance for the Weather. For the Ball will sooner grow hard and brittle in Summer than Winter.

The Horse should have the Bigness of a Pidgeon's Egg of the Ball, twice a Day before his Water, and duly exercised according to his Strength. For nothing removes Viscidity and Clammyness of the Blood, or helps to remove Obstructions of the Vessels, &c. more than Exercise, which puts the whole Vascular System in Motion, (if I may be allow'd the Expression) an Animal Body being as much a Composition of Blood-Vessels as any Thing else, seeing, so far as we can trace Nature thro' that admirable Piece of Machinery by the help of Microscopes, we may observe Blood-Vessels. And in the very Cuticular or Scarf-skin of Human Bodies, I have been many Times pleased to see their Ramifications or Branchings out; but the Injection with which this was performed, I have not been yet able to learn, altho' well acquainted with the Gentleman who performed the same at the Royal Garden at *Paris*, where I heard the late *Monsieur Du Verney*, who wrote that excellent Treatise *de Auditu*, bid fifty *Louis D'or's* for a Discovery of it, upon seeing the Blood-Vessels in the Brain injected to the highest Perfection imaginable. Yet I had great Reason to believe the same mostly compounded of Oil of Turpentine, tinctured with the *Rad. Anchusæ*, or Alcanet-Root. But to proceed.

The Lungs
ulcerated in
the Farcin.

If a Horse be opened that has died of the Farcin, his Lungs are frequently ulcerated, and his Liver wholly putrefied, and also full of Ulcers, which no doubt is caused by the hot and corrupt Blood: Yet as I said before this is not wholly to be cured by purging Medicines.

The most promising Sign of the Distemper or rather its Malignity being overcome, is when the Cords or Knots grow loose and moveable; for then the same may be cured with a moderate Expence, if due Exercise be given at the same Time.

If the Farcin shews itself in Ulcers like unto a Hen's Fundament.

dament, cauterize or burn them well, and apply the following Unguent with a Bunch of Feathers.

Take *common Turpentine and Bees-wax, of each half a Pound; Fresh Butter clarified, one Pound; French Verdigrease in fine Powder, one Ounce and half; Honey, four Ounces;* mix and keep stirring till almost cold, or the *Verdigrease* will fall to the lower Part of the Ointment, and make it much more absterfive or sharp than it should be. Some times instead of the *Verdigrease* I have known used some Soot scraped off the Bottoms of Brass-Pans, which when finely powder'd and stirr'd in well, makes a shining black Ointment; and I believe an effectual one in deterging and healing most Wounds: For Soot as I just now mention'd must be full of igneous and fiery Particles, and therefore good to apply to Wounds, which for the most Part are deficient of a due natural Heat by Reason of the Discharge and Expence of Spirits that Way.

I cannot say I ever knew a Mercurial Ointment used for the Farcin, yet I am sure it would be very effectual and safe, seeing it is often used for the Scab in this Animal. Therefore I shall mention one of that Sort, which may be rubb'd all over the Horse in the hot Sun, if in Summer; but, if in cold Weather, it should be heated by a Fire of Straw or the like made all round the Horse, after which he may be cover'd warm with an old Rug or the like for a few Days, till the Particles of Quicksilver be got into his Blood.

Take *Flanders Oil of Bays one Pound and half; Oil of Turpentine, two Ounces; Crude Mercury or Quicksilver, four Ounces;* mix the *Quicksilver* and *Oil of Turpentine* well together then add the *Oil of Bays*, which should be rubb'd in for half an Hour, or the Particles of *Mercury* will not be sufficiently divided.

Rub the Horse all over with this Ointment in Manner aforesaid once a Week for three Turns, if the Distemper be obstinately fixed. After which, let him have two or three Purges at due Intervals.

The Negro-Slaves in the *Caribbee* Isles are subject to a Distemper call'd the Yaws, which according to the Description I have had of it, resembles the Farcin in Horses; I mean that Sort where the Ulcers turn out the Lips like a Hen's Fundament. And I have been told from good Hands, that nothing comes up to *Venice Turpentine four Ounces; Quick-silver, six Drachms;* mixed for an Ointment to anoint the Sores or Ulcers; and there is a very good Reason why this Application along with proper Internals should work a Cure.

In the Cure of the Farcin of any Kind, most Preparations from Antimony take place, and a Course of Crude Antimony itself, or the *Mineral Ethiops*, for some time is very proper.

The following Preparation is, I think, as effectual as any to eradicate this stubborn Distemper.

A Powder
for the Far-
cin.

Take Butter of Antimony, and Bezoar Mineral, of each an Ounce; mix and make a Powder; which may be beat up with half a Pound of the Cordial Ball while the Ball is moist or soft enough to take it up.

The Author
advise to
buy Chymi-
cal Medi-
cines from
the Apothe-
caries Hall.

Give the Horse the Bigness of a Wall-nut, or three Quarters of an Ounce, of this Ball every Day for two or three Weeks, letting him fast two or three Hours after it, and have moderate walking Exercise. Its Operation is by Sweat and Urine, and in Human Bodies the Mineral Bezoar will sometimes vomit, but it is a very safe and effectual Alterative in Horses if continued for some Time, otherwise little Good can accrue from its Use. But I advise every one, who value their Horse's Health, to buy such Things from the Apothecaries-Hall in London, where they may be sure to have it genuine: But the Chymists are the greatest Jockies of all others; for these and such like Artificers, who keep Medicine Ware-Houses, frequently sophisticate it with half or two thirds of Flowers of *Sal Armoniack*.

Antihæsti-
cum Poterii
good in the
Farcin.

Most Preparations from Antimony are of Use in the Farcin, as I said before, particularly the *Antihæsticum Poterii*, may be given from two Drachms to half an Ounce every other Day. The Dose may be made up with a little of the Cordial Ball as Occasion requires; but of all Things the Owner must have Patience, seeing, in these obstinate Cases, the very Crasis of the Blood must be alter'd from a corrupt and morbid to a healthful and balsamic State.

Lastly, I shall set down a Method of Cure which I have been told from good Hands hath often succeeded, particularly my old Friend the Farrier whom I took Occasion to mention before, told me he had often cured the Farcin by such means, when all others he was able to try had failed. Before I set it down I must confess to the Reader, that I cannot give any right Reason why such Practice should remove the Distemper, unless it be brought about from the new Turn it gives the Blood and Juices: For as my Friend told me he could make a Horse exceeding sick this Way, when he could no Way do it by other Methods or Medicines which he used in the Farcin, and his Method was this, which I suppose he had borrowed from *De Grey*, for I see the same in his Book.

De Grey's
Method of
curing the
Farcin.

Take one Handful of the tenderest Tops of Rue, bruise them well in a Mortar, then mix about two Ounces of clear render'd Hog's-lard with it, and put it into the Horse's Ears, stitching them up afterwards, and let him stand tied up for twenty four Hours at least without Food.

Put a little Wool upon the Composition in each Ear to keep it in the better, and after twenty-four Hours unstitch the Ears and

and turn him to Grass; or, as *De Grey* tells us, he may be wrought after it, *for the more he's stirred and the more spare his Diet, the sooner he is cured.* But we must take *De Grey's* Meaning to be with Relation to a fleshy Horse, which may have contracted the Farcin from foul Feeding and Want of Exercise; and then indeed his Diet should be spare, and Exercise pretty sharp: But 'tis otherwise with Respect to lean Horses which are afflicted with this Disorder.

If the Green Ointment (p. 193.) be not strong enough, but that Fungous or proud Flesh seems to arise about the Wounds, you may mix with every Ounce of Ointment a Drachm of *Gum Euphorbi* in fine Powder, whose Alkaline Qualities we are assured from good Hands, destroy the Acids which corrode Ulcers, and even the Bones themselves so as to induce Rottenness.

C H A P. XXXIV.

Of the Mange or Scab in Horses.

I Shall not trouble the Reader with a long or tedious Description of the Scab in Horses, by Reason the Distemper is so easily known from any other.

The Mange or Scab in Horses is a skinny Distemper, therefore outward Applications will be found most available. The *French* call it the *Elephantic Malady*, because Elephants are much subject to such Disorders.

It is a Kind of a formal Leprosy which often begins in the Neck, Main, or Tail, and causes the Horse to be ever rubbing and scrubbing: The Hair will stare in many Places, peel off, and fall away, and a loathsome Scurf remains after it.

The Scab is well known to be infectious, otherwise our Laws would not provide, that no such Horse should be suffered to go loose, or in a common Pasture, lest he infect his Brethren.

The Cause of the Scab or Mange proceeds from the Blood's being of too thin a Texture, and full of *Serum* of a sharp pungent or corrosive Nature. It is often brought on from Over-heating and Cooling too fast, from low Feeding, &c. And I have observed that the Lime-burners Horses are very subject to the Scab, which I think may proceed from the Lime falling upon them, which so heats and dries their Skins, that the Pores and Excretory Ducts of the Miliary Glands are obstructed and drawn together in such a Manner that the perspirable Matter cannot fly off, but is stopp'd between the *Cutis* and *Cuticula*, and there corrupts and frets the Parts, so that

both the true and Scarf-Skin appear very ugly and full of Wrinkles.

The Cure.

There are a vast Number of Nostrums or pretended never-failing Receipts for the Scab in Horses, but I shall in a few Words shew what is, of all, the most effectual and safe Method to be used in such Cases.

First then, if the Horse be scabbed from Poverty he shall change his Manner of Living; for, *Diseases* (as I have often said) are cured by their *Contraries*. And tho' Bleeding is not absolutely necessary in lean Horses troubled with this Distemper, yet I think both that and Purging are so, when the Horse is full of Flesh: And in either Case, I mean whether the Horse is fat or lean, let the following Ointment take Place.

Mercurial
Ointment
for the Scab.

Take Oil of Bays, (or even fresh Butter,) one Pound; Quicksilver, four Ounces; Oil of Turpentine, two Ounces; black Soap, four Ounces. Mix the Oil of Turpentine and Quicksilver well, then the Black Soap and Oil of Bays; but mind to rub the Ointment a long Time 'till none of the Particles of the Mercury appear to a young Eye; for by this it is render'd much more effectual in removing the Scab. Rub the Horse all over in the Sun, or by a Fire of Furz, or the like. But I own the Scab is soonest cured in the Spring when the Sun begins to have Power, and when Grass has Juice and Feeding in it; and I believe the above Quantity will be sufficient for curing two Horses, if the same be rubb'd well in, or rather thro' his Hide.

The Ointment
sometimes
purges.

This Ointment sometimes purges a Horse; tho' if he is any Thing like sound, it will not do him Harm, and if he is otherwise e'en let him take his Chance; for if he stand the Scouring it may come to be of Service to him, besides curing him of the Mange or Scab.

Crude Anti-
mony proper
after the
Ointment.

After some Time, the Horse should take Crude Antimony in Powder, about an Ounce at a Time 'till he has eat a Pound, in scalded Bran, or mix'd with his Corn, after it has been sprinkled with a little Water that the Antimony may stick to it the better.

There are various Forms of Medicines, both inward and outward, set down by Authors for the Cure of the Scab: But the Method I have just now mention'd is by far the most effectual; and pray where is the Good of putting down a long Train of *Recipes* for each Distemper, when they only serve to embarrass and confound the common and ordinary Reader, who it must be supposed is not able to pick out the most effectual and best contrived Remedies, but rather is apt to choose that which has the greatest Number of Ingredients in the Composition.

C H A P.

CHAP. XXXV.

Of Tumours, Imposthumes, and Wounds in general.

BY a *Tumour, Abscess, or Imposthume*, I would be understood to mean Swellings of any Kind, tho' the first is most applicable to those Kinds of Swellings, which have not any Pus or Matter in them. Thus any Excrecence upon the Body which is preternatural may be called a *Tumour*: But an *Abscess* or *Imposthume* is a Collection of Pus or Matter in any Part of the Body, and is caused either from an Obstruction of the Fluids in that particular Part, which makes them change into such Matter, or from a Translation of it from some other Part where it is generated.

Tumour, Abscess, and Imposthume, what.

Whensoever a *Tumour* happens, the first Method to be used is generally to dissolve or disperse it, *provided the same is not form'd by a Translation of Morbifick Matter cast off from the Blood, in order to terminate a Fever or other Disorder of that Fluid*; for in such Case to attempt a Dissolution of the *Tumour* might bring on worse Evils. And yet I have observed in Human Bodies, that *Abscesses* form'd from the Matter of a *Fever* or other acute Distemper are most obstinate of Cure, and the Wound upon (opening such *Abscess*) and Parts adjacent are more than ordinarily destitute of natural Heat.

First then, if you would attempt Resolution or Dispersing the Swelling, all Applications of austere or sour Things, such as *Vinegar, Verjuice, Lees of Wine*, (especially *Red Wine*;) and the like, are beneficial; so is every Thing potentially cold, or which is actually so: But moderate and proper Bandage, in my Opinion will hinder the Growth of any *Tumour* or Swelling sooner than any Application whatsoever, for Reasons already assign'd under the general Head of *Repellents* or Medicines which drive back *Tumours*. Therefore thither I refer the Reader for his farther Satisfaction in the Cure of Swellings by dispersing them. Tho' this I must put him in Mind of, *viz.* that when he has dispersed a Swelling, he ought to purge the Horse once or twice in order to cleanse his Blood, as much as possible of the offending Humours which may be driven back into it.

The first Intention of a Cure.

The *second* Intention of Cure in *Tumours* or Swellings, where there is great Heat, &c. is by Suppuratives or Ripeners as they are stiled; and of this I have treated sufficiently under those general Heads. However, I shall set down a Cataplasm or Poultis for ripening any Swelling where such Things can be applied with Conveniency.

The second Intention of Cure.

Take Leaves of Mallows, and Marsh-Mallows, each six Handfuls; White Lilly-Root, half a Pound; Fenugreek and Lin-
seeds, Swelling.

A Poultis to ripen any Tumour or Swelling.

seeds, of each four Ounces; purified Hog's Lard, about two Pounds. Mix.

The Seeds should be first bruised and boil'd in about three Quarts of Water to two, or 'till the Liquor seem a Jelly. The Leaves and Root must be boil'd well, and the Water press'd strongly out between two Boards; then beat the *Jelly* and *Hog's Lard* well up with them, and use it very warm and thick spread, as you see Occasion, 'till the Swelling is fit to be open'd or otherwise dispersed away; for if Nature (and no doubt she is the best Guide) design that the Tumour or Swelling shall suppurate or ripen, this Application assists in softening the Skin, &c. and relaxes the parch'd *Fibrillæ*, which were before so corded and upon the Stretch, that the Motion of the Heart was scarce strong enough sufficiently to protrude the offending Matter. And again, if Nature designs a Resolution of the Swelling, such Poultis is no ways disagreeable; for by its softening Quality it helps to ease the Pain and Inflammation, and thereby gives Vent to the offending Humours either outwards or inwards, as Nature shall point out most for the Benefit of the Sick.

The Author
justifies his
Theory.

It may be objected by some, who can sooner spy a Fault than mend one, that herein I contradict my own Theory of Repellents, seeing I make one and the same Poultis serve both as a Repellent and Ripener: But I beg of such to consider a little, that this Poultis acts no otherwise as a Repellent than as it cools and eases the Inflammation; and whatever Application does this must hinder a greater Flux of Humours to the affected Part. Thus *Opium*, tho' not strictly speaking of any Restricting Quality, frequently stops a Looseness, which it performs in a different Way from *Lemnian Earth*, *Bole-Armoniac*, *Dragon's-Blood*, and the like. But as a great many Things go to all Things, it must not be expected that I should give a mechanical Account of the Operation of every Thing I prescribe in this Book; therefore I hope no Body will condemn me before I be farther heard, if any Person shall see Occasion to call me to a Vindication of my Writings.

How to open
Tumours or
Swellings.

When any Tumour or Swelling is become soft, so that the Matter may be felt to fluctuate under the Finger upon Pressure, then 'tis proper the same should be open'd the whole Length, (if it can be done with Safety) and not cross-ways, but according to the Direction of the Fibres. Tho' if the Swelling be very superficial, I mean only Skin-deep, it may be open'd any Way according to the convenient Situation of the Part in which it lies; but what I mean by opening Swellings according to the Direction of the Fibres, is, that none of the Tendons or Leaders, as they are call'd, may be cut; for if any of these happen to be touch'd, and their Fibres divided transversely or a-cross, any Person may judge the Consequence from

from what I have before said in my Description of the Nature and Elasticity of an Animal Fibre.

I have set down the Form of an Ointment, (Pag. 193.) which should be constantly kept ready in those Stables where there are many Horses; for Accidents, as Wounds, Bruises, &c. are happening every Day, such as Over-reaching when the Horse steps so far with his Hind-Foot that he cuts his Fore-Heel: I say, the Ointment described Page 193. in the Chapter of the *Farcin*, is a very convenient Ointment to be kept for constant and common Use to Wounds of all Sorts. Only when they happen to be old Wounds, as Fistula's and the like, it is necessary, first, to destroy all the Callosities or hard and horny Substance either by Knife or Fire, and then apply the Ointment very warm upon Hurds, &c. And it is for old Wounds especially that I have order'd the Soot to be mix'd with it as Occasion offers.

If fungous or proud Flesh happens to put forth, which is very common, you may wash the same with the following Water as often as there is Necessity for it.

Take Corrosive Sublimate, half an Ounce; dissolve it in a Pint A Water to eat away proud Flesh. of strong Lime-Water, which it will turn of a Yellow Colour. Keep this in a Bottle with a Stopple made of Bees-Wax or Glass.

I shall not make any needless Distinction between simple Wounds and complicated Wounds, the first being reckon'd only a Division of the soft Parts without the Concomitancy of other simple and complicated Accidents, and the latter where there is a Contusion or Bruising of the Flesh at the same Time the Wound is given, and sometimes a Fracture or Dislocation of the Bones, all which Circumstances only make the Wound longer, or more difficult of Cure. Tho' if those Wounds which lie deep, and where the Bones are hurt, be dress'd with Hurds dipp'd in *Tincture of Myrrh* or *Tincture of Euphorbium* at the Bottom, and the rest of its Parts with the aforesaid Ointment, there is no Danger but, in Time, they will do well.

I must here take Notice of Mr. Gibson's Mistake, Page 194 Mr. Gibson's Mistake about Wounds of the Brain. of his Book, where, after speaking of Wounds of the Viscera, he says, " Wounds penetrating the Substance of the Brain are also incurable, because of its Softness, the Multiplicity of its Vessels, and the Tenderness of its Membranes."

Now it is universally agreed, that wounds upon the Brain of Animals are not always mortal; tho', if I remember right, our Countryman Mr. *Wiseman* says, that the Patient may live till the wounded Lobe be wasted away and consumed, but cannot survive afterwards: Yet I have more than once been call'd upon, where the very Substance of the Brain has been wounded, and that a good Portion of it, together with the *Dura* and the *Pia Mater* have come away with the Dressings, after the fractured

fractured Pieces of the Skull have been removed. So that from this it may be seen how much the *Ancients* were mistaken with relation to Wounds upon the Brain, which are not, in my Thoughts, provided they do not happen upon the *Cerebellum* or back Part of it, near so dangerous as Wounds of the Liver, Lungs, Stomach, or Intestines, setting the Heart aside, for that most noble Part, I own to be the *Primum Mobile* of the whole Animal Machine; and yet there are not wanting Instances, where even Wounds of the Heart have not prov'd mortal, particularly I remember the Heart of a Deer kept as a Rarity at *Lowther-Hall*, the Seat of that honest and worthy Nobleman the Lord Viscount *Lonsdale*, which had a Musket Ball lodged in it, that was healed over, and a callous or hard Substance all round it; which convinced me plainly, that such Ball had been lodged there a considerable Time before that which might be the Death of him: And herein we may find, that Nature will often perform Things beyond the Reach of human Skill or Foresight:

A Musket Ball in the Heart of a Deer that recovered.

Wounds in the Stomach &c. exceeding dangerous.

If a Horse be wounded in the Stomach or Paunch, Guts, Liver, &c. I think 'tis hardly worth while, considering the hazardous Event, to attempt a Cure. Yet, if his Skull happen to be fractur'd, there's no doubt but he might as successfully be trepan'd as Man. And if it is so broken and shatter'd that with an Instrument call'd a *Lewatory*, the Farrier may raise up and take out the Fragments, I say then the Wound may be healed with the following Composition.

A Mixture for Wounds of the Brain:

Take Honey of Roses, half a Pound; Spirit of Wine, four Ounces. Mix.

When the Bones or Fragments are carefully remov'd, cut a Piece of fine thin Silk or Linen Cloth a little bigger than the Hole in the Skull, fasten it in the Middle by passing a little Thread thro'; dip this in the Mixture when warm'd, and cover the Orifice or Hole, then fill the Wound with Dozels of Lint dipp'd in the same; after which bind on a double Cloth, &c.

How to know when the Lungs are wounded.

If the Lungs be wounded, the Air will penetrate thro' the Sore with a frothy Blood of a Vermilion Colour. Yet I have often known ignorant People imagine Wind or Air to come strongly thro' the Wound, and at the same went down at the Mouth, and so on even till it blew the Candle out; whereas it was only the very Air that passed in at the Orifice on Expiration, or Breathing out the Air in the Lungs; for when these are again expanded and stretched on Inspiration or drawing in the Breath, the Air between them and the Diaphragm or Mi-driff, or any where in the lower Belly, must necessarily be forced out thro' the Wound. And I well remember a Surgeon to have gained great Reputation for his Skill in curing a Wound caused by a Plow-share in a Boy's Side, when it was supposed the Air came thro' his Lungs, and blew the Candle out

tho'

tho' at the same Time, neither the Lungs nor any principal Part was touched in the least: But the common Integuments being cut thro', the Air on Expiration went in, and on Inspiration return'd again and put out the Candle. So you see how The common People are to judge of Merit, seeing, as I suppose, there are few either Physicians or Surgeons will care to undeceive them, when they cry up the Cure for a greater Matter than what it really is: And for my Part, I am very well convinced from many Observations, that the Practice of Physic, as well as Surgery, in some of its Branches, especially that of Bone-setting, is turn'd into mere Sham and Knavery. And so far they resemble the Law in this Particular, that if the Professors were always to speak Truth, their Fees would not be by far so numerous. Yet I would fain hope there are some in all Professions, who will not barter their Consciences for that vain, empty, and unmerited Praise before spoken of, or even for *Golden Fees*, which are most tempting. But to return:

When the Stomach is wounded, there will be violent Sick-ness, with sudden Loss of Appetite; and if any of the small Guts are run thro', the *Chyle* usually issues out of the Wound, tho' 'tis hard to know it from Matter after the Wound begins to digest.

If the Kidneys be wounded, the Horse shall stale Blood; and if the Bladder, then the Piss shall issue forth at the Orifice of the Wound. Therefore, by these and many other Signs too tedious to mention, may inward Wounds be known.

I should, before I had put down the Composition of an Ointment, told the Reader, that if there is great Hemorrhage or Loss of Blood, the same must be first stopped by the following styptic Composition.

Take any Quantity of Filings of Iron, and pour upon them Spirit of Salt to the Height of three or Four Fingers above them; let them stand in a gentle digestive Sand-Heat, or near the Fire, till the Fermentation is over, and the Spirit of Salt is become sweet; then pour off what is Liquid, and evaporate it in an Iron or Glass Vessel until half is consumed; at which Time put to it an equal Quantity of Sugar of Lead, that is, the Weight of the remaining Liquor, and evaporate to a dry Powder: But the Operation should be stopp'd upon its becoming pretty dry, or it will not have so much Vertue as it ought.

This is that grand Styptic, for the Sale of which there was once a Patent obtain'd. The Difference in that sold by Patent and this, I have not put down, being so immaterial that it is scarce worth Notice. Nor need I trouble the Reader with any other styptic Forms either solid or liquid; for, if this will not stop the Blood, the Case is desperate. And before I quit the Subject I must declare, that I have not found a more powerful or effectual Styptic in the whole *Materia Medica*, either

The common People
unfit to
judge of
Cures.

How to
know if the
Stomach or
small Guts
are wound-
ed.
The Kid-
neys and
Bladder.

An excellent
Styptic Pow-
der, com-
monly called
Colebatch's
Styptic.

outwardly

outwardly applied or inwardly administred. The Dose to a Horse inwardly, either to stop Bleeding or even most Kinds of Fluxes, is about two Scruples or a Drachm. Mix it with a little warm Ale or red Wine, Nutmeg and Sugar if you please, and give it Milk-warm: If this fail in two or three Doses, every Day one, I cannot say what will answer; for, I have known it stop the Bleeding of an Artery, which has been cut, upon unskilfully striking the Fleam into a Horse's Neck to let him Blood; and this it did after most other Remedies had been unsuccessfully try'd.

There are some Surgeons and Apothecaries, I believe, keep this Preparation; and really none should be without such a thing, by reason 'tis often wanted in Haste. Therefore if you send for it to the Apothecaries, enquire for it by the Name of *Calebach's Styptic*; and if 'tis good, it will be in little hard Lumps of a brownish Colour; but if it has been kept badly cork'd, it has lost its Vertues and becomes moist and soft.

Little to be
done in in-
ward
Wounds be-
sides stop-
ping the
Blood.

There is little to be done in the Case of inward Wounds more than stopping the Efflux of Blood; for Nature must perform the rest of the Work. Yet no doubt but Surgeons as well as Farriers will pretend to heal such Sores by applying Ointments, Plaisters, &c. to the outward Orifice, when in Fact they might as well, and with as much Reason apply the same to the Patient's Heel as to his Side, for a Wound either in the Lungs, Liver, Stomach, &c. which lye far beyond the Power of outward Applications. Therefore a proper cooling and balsamic Regimen is, no doubt, all (after stopping the Blood) which either Physician or Surgeon can put in Practice for the Benefit of the Sick.

Artery
large, if
wounded,
what is to
be done.

In Cases where any large Branch of an Artery is wounded, the Method is to separate the muscular Flesh from about it, if it can be done with Safety, and by passing a blunt, long, and crooked Needle with an Eye made in the Point, under the Artery with double Silk waxed a little, the same may be tied strongly both above and below the Wound or Hole in the Blood Vessel; and this Operation is stiled *the Operation for an Aneurism*. But it must be considered, it is much harder to be performed upon a Horse than a Man in several Parts of his Body, for Reasons too tedious to enumerate. Therefore, if Blood cannot be stop'd by the Styptic I have mentioned, I think 'tis in vain to attempt farther.

A proper Quantity of it should be laid upon the Part, according to the Emergency; and be sure you always force it down, and hold it upon the very Vessel that spews out the Blood, if it can be done outwardly; if not, it may be given inwardly, as I have already taught: and I dare say it will hinder the Horse from Bleeding to Death, if any thing in the whole Universe will; seeing nothing which has yet been discovered in the chymical

mical Pharmacy comes up to Preparations from Iron or Vitriol, for stopping large Hemorrhages or Bleedings.

I hope I need not tell the Reader, when any Wound requires to be stitched together, seeing his own Judgment will easily point out that to him: For, Wounds in the Fleishy Parts, and when they happen according to the Direction of the Fibres commonly call'd the *Leaders*, these are frequently stich'd; but it is otherwise amongst the Tendons or Sinews, which the Needle might prick, and do more hurt than the first Accident.

When a Tendon happens to be cut quite asunder, there is an Operation perform'd which is call'd *the stitching of a Tendon*; which is done by laying one End over the other about half an Inch, and so passing the Needle and waxed Silk two or three times thro' them, and dressing the Bottom of the Wound with spirituous Dressings, and the Lips with the Ointment, *p. 193, of this Book.*

Lastly, When any fresh Wound that lyes deep requires to be stich'd, I advise, that the Farrier do not only pass his Needle Skin deep, but a good Way into the Muscular Fleish, otherwise the Wound will be left in such a Condition, that the congealed Blood will become corrupt, and hinder the sound Healing of it, and often make it turn fistulous, &c.

One Thing must always be observed, *viz.* that when any Creature is wounded, keeping the Wounded Part (as much as possible) free from Motion is half the Cure; for I have known many a slight Wound, especially if amongst the Tendons or Sinews, which might have been cured in a little Time, provided the Creature had not stirr'd about: But by such Malpractice a Flux of Humours has been occasion'd, and a Gangrene and Mortification sorely threatened, and sometimes brought on. 'Tis therefore, that I advise resting the wounded Part; and if the Horse will not lye down in a wide Stall, he should be forced to it by tying up one of his fore Feet close, and fastening a Cord or small Rope about the other Fetlock, and bringing the End of it over the Horse's Shoulders, and by hitting him a Kick with your Foot behind that Knee, and at the same time pulling his Nose down strongly to the Manger, you will bring him upon his Knees, where you should hold him till he's tired, and that cannot be long; but if he don't lye down soon, you should get somebody to thrust sideways against his Quarters to throw him over. Mind your Halter be good, and Staple in the Manger strong, and by forcing him down several Times in this Way, you may teach him to lye down at the same Words you made Use of when you first cast him, for they are exceeding tractable Creatures.

I know nothing better for inward or outward Wounds than what's commonly call'd *Balsam de Vervian* or *Vervian's Balsam*, which made so much Noise in Ireland some time ago. The

Recipe

Peruvian's
Balsam for
all Kinds of
Wounds.

Recipe I shall put down, as I receiv'd it from a faithful Friend, who profess'd it was genuine; but whether it be so or no, I am sure the Composition is according to Art. The Balsam is this:

Take Gum Benjamin, one Ounce; Storax, six Drachms; Peruvian Balsam, half an Ounce; Succotrine Aloes, six Drachms; finest Myrrh, two Ounces; Tops of St. John's Wort, two Handfuls; rectified Spirits of Wine, three Pints. Cut the Herb small, bruise the Gums, &c. and infuse in a warm Place, for three or four Days, till the Tincture be made as strong as 'tis possible for the Ingredients to make it; and decant it off as Occasion offers.

This Balsam or rather Tincture is to be syringed now and then into the Wound, if the same lye deep; otherwise 'tis sufficient to smear it all over with a Feather, and cover it with Lint or Tow, proper Bandage, &c.

There is one good Observation in Mr. Gibson's Book, with Relation to Gun-shot Wounds, (*viz.*) "that such Wounds are not subject to bleed much, by Reason of the Bruising and Contusion which accompanies them." And this indeed is one happiness, seeing so many Horses must be wounded in Battle.

The Manner
of extract-
ing a Ball
out of a
Gunshot
Wound.

The first Thing to be attempted in Gun-shot Wounds is to extract the Ball, if the same be lodged so as safely to be come at; and in order to this, the Horse should be put in the very same Posture, in which he was when he receiv'd it, otherwise it will be impossible to extract it, by Reason of the bellying out of the Muscles; and besides, this Operation should be done as soon as possible, or the Ball will fall by its own Weight, and by the Motion of the Parts, insomuch that it can in no wise be laid hold of. The Instrument for extracting Balls, or other foreign Bodies, forth of deep Wounds, is a hollow Pipe or long Cannula, which contains a small Piece of Steel, with a Kind of sharp Screw at the End, made in the manner of that we raise the Skull with when depress'd, and when you touch the Ball with the End of the smooth Cannula, you turn forward the Screw, and so extract the Ball, Pieces of Rags, &c.

Gold or Lead
will lye a-
mongst the
Muscular-
Flesh many
Years with-
out Damage.

I know no Kind of foreign Body that will lye in the Flesh without Corruption, besides Gold and Lead, but these will for many Years. And we have Instances of Soldiers who have receiv'd Balls about the Neck, Shoulders, &c. and after a number of Years, those very Balls have fallen down as low as the Loins, Hips, &c. where they have been drawn out. So that in the Main, these are two very great Advantages attending the Misfortunes of glorious Actions, (*viz.*) that Gun-shot Wounds are seldom or never deadly (provided they miss the very Vitals) from Loss of Blood. Nor is the Ball of any corroding Metal, but rather of a friendly Nature and Disposition, and unless some Rag, or other foreign Body be driven in by the Force of the Ball, the Lead does not much incommode the healing of the Wound.

Two great
Advantages
attending
the Misfor-
tune of
Gun-shot
Wounds.

Wound. Yet no doubt but it is possible to make Bullets, Arrows, &c. poisonous, by letting them remain for some Time in certain Liquors, or Juices of Plants; but the Enemy who is guilty of this can never be call'd a fair one.

If a Horse happen to be burnt or scorched with Gun-powder, ^{Burnt with} &c. the best Application is Spirit of Wine and Camphire, ^{Gun-pow-} about a Drachm of the last to each Ounce of the first; and afterwards, I mean in about half an Hour, anoint the Part with common Oil, which is of as good Effect as Oil of Roses, Oil of St. John's-wort, or Linseed Oil, as prescribed by Mr. Gibson in like Cases; and I am satisfied that Spirit of Wine camphorated, is the very best Thing that can be applied to a Burn ^{Spirits of} or Scald in Human Bodies, provided the same be used immediately, and before the Scarf-skin be raised into a Blister, for it ^{Wine and} will preserve that Skin from coming off, and entirely take a ^{Camphire.} way the Complaint. But if the *Cuticula* or Scarf-skin be raised by Serum or watry Humour under it, it should rest there a proper Time, and then be let out, the Skin taken away, and the Blister healed with Melilot Plaister, in the common Way; for there's little Difference whether a Blister be raised by actual or potential Fire, only the first is quicker and smarter; but one and the same Management will serve for the Cure of either, when the outward Skin is come off. And as to what the common People say of Fire being in, or Fire being out, of the Part, 'tis a Pack of Nonsense: For if they'll only have a little Patience, and Dress with common Melilot Plaister, the Inflammation which they term Fire, will go off by a Discharge of Serous and other Humours from such superficial Wounds.

If the Burn be exceeding violent so that the Horse's Hide is much scorched, I cannot warrant that the Spirit of Wine, &c. ^{The green} will be of so great Avail, by Reason the very Skin is burnt as ^{Ointment} it were to a Cinder. Therefore in such Case you must apply ^{proper and} the common green Ointment prescribed, (*p.* 193.) pretty thick and warm upon Tow, and in some reasonable Time the Eschar or thick Scab upon the Wound will separate, After which continue the same Dressings 'till the Part affected be well, and then there's no doubt but it's cured, as I told Captain Burdon by his Turnip-Poultis. ^{when.} ^{Bleeding,}

If the Horse be Feverish, I mean, if he has a Symptomatic Clysters, Fever from the Pain and Inflammation of the Burn, then he ^{&c. to cool} should be bled, and have Clysters to cool him, and whatsoever ^{the Inflam-} he drinks should be a little warm'd. ^{mation.}

C H A P. XXXVI.

Of a Gangrene, and Mortification.

MR. Gibson defines a *Gangrene* to be a sudden and violent Inflammation with intolerable Pain, and that the same is no other than a beginning Mortification.

Now this Description of a *Gangrene* I take to be very lame, for by it one would be induced to believe every sudden Inflammation a beginning Mortification. Therefore I shall offer another Account of this direful Phenomenon.

The Author's Account of a *Gangrene*.

The Signs of a *Gangrene* are when the Symptoms of Inflammation too suddenly disappear, without taking away the Cause; a dull Sense in the Part, Softness, Flaxidity, not rising again if depress'd, Pustules full of a Lymphatic or watry Liquor, sometimes yellowish, at other Times of a reddish Colour, in and about the Place inflamed. After this comes on a deadly Blackness of the Flesh, &c.

A Mortification, what.

In a perfect *Mortification*, which Word has its Etymology from *Mors*, Death, and *facio*, to make, the natural Juices quite lose their proper Motions, so that they fall into a fermentative one, and thereby corrupt and destroy the very Texture of the Parts, Sense and Motion in this Case are entirely taken away; (I mean in the Limb affected;) there is a cadaverous Smell, and a deep mortiferous Corruption preying upon all the adjacent Parts, even to the very Bones themselves; a *Gangrene* is presently to be remedied, but a *Mortification* or *Sphacelus* immediately to be extirpated or cut away by the very Roots.

Mortification in old Age deadly.

If this Distemper happens to an old Horse, whether naturally or by Accident, it is almost always deadly; and in Human Bodies from whatsoever Cause a *Mortification* proceeds, if the same fall upon the Aged, or Hydropical, Phthysical or Scorbutic Habits, it mostly carries the Patient off.

The Cure of a *Gangrene*.

In the Cure of a *Gangrene*, nothing exceeds timely and smart Scarification, or cutting into the Part, in several Places, to discharge the fermenting Blood and Humours tending to Corruption. And really the Ichor which flows out in such Cases is of so corrosive a Nature, that I have been often, in Human Bodies, surpriz'd to see it immediately take away the Polish of a fine Steel Instrument, and tinge the same with a bluish Cast, which shews the Juices to be in strange Confusion and Disorder.

Lime Water and Sulphur good to stop a Mortification.

After Scarification it is necessary to wash the Sores and all round the Part with strong and warm Lime-water, with some *Sulphur Vivum* in Powder mix'd with it; about a Quarter of a Pound to two Quarts of the Lime-water will be sufficient. The following is likewise of great Service in stopping a *Mortification*.

Take

Take Oil of Turpentine, four Ounces; Tincture of Myrrh- A Mixture for a Mortification.
 Aloes, one Ounce; mix and wash the Sores, after Scarification, with it very hot twice a Day. But of all outward Applications, a very good Author recommends the following Solution.

Take Spirit of Nitre, (I suppose he means that made with Oil A Solution for a Gangrene.
 of Vitriol,) or for want of that Aquafortis, two Ounces; Quicksilver one Ounce. Mix. Moisten Cloths in this Liquor, and fold them round the Gangrened Part, and as our Author says, the Dead will readily separate from the Sound; nor is there says he any Occasion to think of any other Medicine for a Gangrene, seeing there is not found one which performs the Work sooner or better.

I must own I never tried this Solution of Quicksilver in the Case *Belloste* (for he is my Author) mentions, but as he is a very old Man, and of long Experience in a very extensive Practice, I think I am not to blame to copy after him. Tho' I must own this Gentleman has rather carried the Jest too far, when his Veneration for Crude-Mercury or Quicksilver led him to an Administration of it in almost all Diseases. And indeed our *Eng- An Observation on the Ladies drinking Quicksilver.*
lish Ladies were so infatuated with the salutiferous Vertues of this Mineral, that they used to drink it in their Tea, insomuch that they frequently, tho' involuntarily, dropt the small Particles of it all round the Floor upon a Ball-night, so that one would really think there had been a Parcel of small sparkling Diamonds thrown about the Room.

I cannot say but that Gunshot-Wounds are most subject to Gunshot Wounds subject to mortifie. Scarification proper.
 gangrene and mortifie, by Reason of the Contusion, at the same Time the Wound is receiv'd. Therefore pretty large Scarifications are most certainly proper in Gunshot-Wounds, to promote the natural Heat and genial Warmth of the Part.

I remember to have seen a small Piece publish'd by Mr. *Rushworth* a Surgeon lately dead as I remember at *Northampton*, in which Book he tells us of the great Usefulness of the Jesuit's Bark in stopping Mortifications, and upon such Recommendation I made Trial of it, and chose the Bark as good as I could.

The first was upon a young Man who had the Humeral Ar- Jesuit's Bark good to stop Mortifications.
 tery wounded upon unskilful Bleeding by an Apothecaries Apprentice, so that his lower Arm began to mortify, and the Mortification, without yielding in the least to the Bark, spread up to his Body, down his Side, and kill'd him. The Boy to oblige his silly Mother would not consent to lose his Arm, or he might have been yet living. Nor could the Operation for the Aneurism be perform'd, by Reason I was satisfy'd it was the main Body of the Humeral Artery which was wounded. Therefore if this had been tied up, all the lower Arm must have wanted a Supply of Blood. But I own I was not satisfied from this Trial,

Trial, that the Bark was of no Service in stopping Mortifications; for I was not so stupid to imagine that it could make the poor Boy a new Artery: No, I think the Bark in this Case had not a fair Chance to grapple with the Distemper: Therefore I made use of it in more easy and slight Cases, where the Part seem'd to threaten a Gangrene, or Mortification, from a Decay of Spirits, or for want of natural Heat, as I said before: For if an inflamed Tumour too suddenly grows cold, then this Drug no doubt yields Relief by mechanically promoting the Firmness and Elasticity of all the Animal Fibres: And therefore those Horses which happen to be wounded in Engagements, it may not be improper (if they are worth rearing) to give them a Pound of Bark by Ounces twice a Day mixed with Beer or the like, and a little Venice Treacle along with it.

C H A P. XXXVII.

Of Venomous Bites, as of the Mad Dogs, &c. in Horses.

I Do not know any Thing more dangerous in England than the Bite of a Mad-Dog or Viper, but very few Misfortunes (thank God) happen from the Latter, tho' there are many from the Former. And besides, the Bite of our Viper is nothing like so deadly a Bite, as those in hotter Countries, (*viz.*) Italy, &c.

The Signs of
Madness in a
Dog.

Before I proceed to the Cure of the Bite of a Mad-dog, it may not be improper to give some Account how a Person may know when a Dog is really mad; for I am satisfied that many poor Curs are said to be so, after they have been abused and tumbled in the Dirt, when in Fact the People that follow to destroy them are the madder of the two; and whomsoever such innocent Cur happens to bite in his own Defence must be doom'd forsooth bit by a Mad-dog, and thereupon travels Scores of Miles with his wife Head to apply for Relief to some ignorant Fellow as silly as himself, only 'tis rumour'd he has got a *Nostrum* or never-failing Secret for the Cure of these venomous Bites. And upon taking such Pill, Powder, Bolus, or Draught, the deluded Traveller returns with *Mens Sana in Corpore Sano*; altho' 'tis tenfold nay I may say a hundred to one, that such Dog was not really mad, or that if he were so, the *Saliva* or Slaver did not get into the Blood of the Person, who fancied himself bit, and if it did not, I am sure no evil Accident would follow upon such Bite. Yet such People say that *if it do no Good, it can do no Harm*; true, but then why should a Pack of ignorant Fellows have the Credit of curing these venomous Bites with their *Nostrums* and Nonsense, when the Operation of the very Poison it self, as well as the Methods by which it is prevented

prevented from doing Harm, are truly mechanical, as has been sufficiently shewn by Dr. Mead in his Essay on Poisons.

The first Symptom of Madness in most Animals, is an unusual Trepidation or Trembling. The first Symptom of Madness.

The *Diagnostic* Signs of a Dog truly mad, are Hunger and Thirst, yet he will not eat or drink, except when the Distemper is in its first Stage. His Eyes are fierce and flaming; he hangs down his Ears, thrusts out his Tongue, froths much at the Mouth, barks at his Shadow, runs along sad and anxious, often breathes as if tired with running, carries his Tail bent inwards without any Difference; he runs against all he meets with Force, and bites running in a hasty and uncertain Course. A true Description of a mad Dog.

N. B. All Dogs that are well have so much Sense of the Danger, that they fly away both at the Sight and Barking of one that is mad.

"Mr. Gibson tells us, that the Biting of a Mad-dog is not so poisonous as suppos'd, but only as those Creatures are apt to strike their Jaws with great Force, whereby they sometimes wound and bruise the Sinews and nervous Parts; but that the Bite of an Adder, is plainly venomous and deadly from many Instances both among Men and Brutes." Mr. Gibson's Account of the Bite of a mad Dog.

Now for my Part I cannot see what should lead this Author into a Belief that the Bite of a Mad-dog is not so poisonous as we may imagine, seeing daily Experience evinces, that it is so, unless that, because the Wound from the Bite of this Creature when mad, is as easily healed as any other Wound can be. And really the Bite of a Mad-dog has this peculiar and wonderful in it, to wit, that sometimes the Mischief is not discover'd 'till the Occasion of its Cause is quite forgot, as the justly celebrated Dr. Mead observes. The Author differs in Opinion with Mr. Gibson.

It often happens that the Poison shews itself two or six Months, nay sometimes a whole Year or longer after the Bite; and I have been well inform'd from very credible People, that a Carrier between *Bernard Castle* and *Kirkly Lonsdale* in *Westmoreland*, went mad three Years after the Bite without any new Aggravation, and died howling and barking, with all the Symptoms of this so direful Malady upon him. So that really we cannot tell when we are quite safe. However, if after forty Days the Creature bit continues well without any of the common Symptoms of Madness upon him, we may reasonably conclude the greatest Part of the Danger to be over. The Venom commonly shews itself in forty Days.

I believe by Experience, and our own Observation, that the *Saliva* or Slaver of the Dog is chiefly vitiated, and that the Poison is only in that, for it is that which usually infects Wounds. Yet we have some authentic Accounts that the Mischief may be communicated without a Wound. Particularly we see in the *Philosophical Transactions* an account of two Men affected with Madness from touching of the *Saliva* or Slaver of An Account of two Men affected from the Slaver of a mad Dog without a Wound.

a Mad-dog, without any Wound or Bite given. Tho' I am of Opinion that these Men have had some sore Places upon their Hands when they touched the *Saliva*, and that the same has affected them by penetrating into such sore Places, otherwise it is scarce possible the Thing should come to pass: For if the outermost Skin commonly called the *Scarf-skin* be sound and whole, it is of such a Nature, that it will not easily admit any Thing to pass thro' it inwardly, as may be seen every Day in the Application of *Epispastic* or Blister-Plaisters, which seldom cause the Strangury, unless some of the Flies be put on the Melilot Plaister after the outermost Skin is remov'd. And then indeed the Ends of the Blood-vessels, &c. are unguarded, and the small Particles of Flies enter, and so stimulate the Parts, that very frequently a great Heat of Urine and Strangury are occasioned, which would continue longer if the Party did not drink plentifully of small Liquors to wash off the Flies by the Kidneys, &c.

Two Boys
affected with
Madness,
only by
handling a
Wound in a
Dog's Head
that had
been bit by a
mad Dog.

We have likewise an Account of two Boys in Ireland, who were in like Manner affected, only by handling of a Wound in the Head of a Dog bit by another Mad-dog: Tho', as I said before, we are not sure but these Lads might have little Cuts or Sores upon their Fingers, by which the Venom might enter, and so get into the Mass of Blood.

Time will not permit me to run Divisions upon each of the Symptoms attending the Bite of a Mad-dog, nor to tell the different Prescriptions of eminent Men upon the Subject. Therefore I shall content my self with setting down the most effectual Method yet known for the Cure.

The Cure.

It is much doubted by the most ingenious Men, whether or no there is any Cure for the Bite of a Mad-dog when the Venom has once taken Root, but that the same may be hindered from communicating with the Mass of Blood, if the Part affected be managed as it ought, no one should make the least Scruple. And in order to this End, let the Wound as soon as possible be cauteriz'd with a hot Iron; and as *Galen* has recommended, let a Circle be drawn with such Iron round the Wound pretty deep, then wash the Sore with the following Mixture.

Mixture to
wash the
Bite of a
mad Dog.

Take good Mustard-Seed in Powder, two Ounces; White-Wine Vinegar, one Pint: Mix and digest warm and close stopp'd for an Hour or two, then strain and keep for Use.

This Mixture or Infusion should be apply'd as warm as 'tis possible to be borne: After which let the Wound be dress'd with some of the freshest *Egyptiacum* Ointment you can get; then cover it with Pledgets of Tow, and bind it up according to Art. This should be done twice a Day for some Time, I mean the Dressing with the Ointment; for once is enough to cauterize when such Thing can be done with Safety. But if the Bite be amongst

amongst the Sinews or Tendons I am apprehensive giving the Fire might contract them so as to lame the Horse, unless the Operation was perform'd in an easy Manner by a small pointed Iron, and only burning the Wound, without any Circle round afterwards, as observed before.

All that we have to do is to break, blunt, or sheathe the pointed *Spiculæ* or little floating Daggers which are contain'd in the Venom infused into the Wound. And this may be done by Fire immediately apply'd, as also by *Viper's Fat*, which is allow'd the most penetrating Kind of all others; for it is certain the Viper-Catchers have a Way of smearing over their Hands with the Fat of the Viper, and then they fear no Colours but boldly handle them as soon as their little Dogs make a Set at them in the Manner of Setting Dogs, which is the Way they take Vipers both here and in *Italy*; for this Fat so sheathes and envelopes the pointed *Spiculæ*, that they are not able to work their Way thro' the Fibres of the Body, they are so entangled by it.

Next to Cauterizing is keeping open the Wound a long while, at least forty Days, by making a Kind of Issue of it with a Pea, or the Root of *Florence Orrice* cut into that Shape, and rubb'd over with the following Ointment.

Take the common green Ointment, prescribed Page 193, two Ounces; *Cantharides* or *Spanish Flies* in Powder, three Drachms. An Ointment.

During these Things, whether the Creature that is bitten be Man or Beast, it is absolutely necessary to immerse them in Salt-Water; but if that cannot conveniently be come at, any cold Spring may do, till you can arrive at the Sea-Water. The deeper the Creature is plunged over Head the more effectual will it prove; for it is not altogether the Coldness, but the Weight of the Fluid which presses upon the Body in Immersion, that does the Business. And it is therefore, that Salt Water in many Cases is more beneficial than cold Bathing, by reason it is much heavier. But as to the Number of Times proper to dip in the Salt Water, I am of Opinion Ten Times are better than Nine, tho' the first be an even and the latter an odd Number.

A great deal of Stir has been made in the News several Times, with an Account of a pretended Secret for the Cure of the Bite of a *Mad Dog*. And I knew some Gentlemen who esteem'd the Thing (before it came in the News) as a grand *Orvietan* or Counter-Poison; whereas the Composition is in *Bates's Dispensatory*, under the Title of *Decoctum ad Morsum Canis Rabidi*. However to save the Reader the Trouble of looking into that Book, I shall here write the Thing down, that those who judge fit may try its Efficacy; and I must own the same is well enough calculated for the intended Purposes.

A Decoction
for the Bite
of a mad
Dog.

Take Tops of Rue, six Ounces; Filings of Tin, London Treacle, and Garlick, of each four Ounces; clear Ale, four Pounds or two Quarts: Boil to the Consumption of one Half, and digest or let it stand warm a While, then strain it. Dose to a Man, six Spoonfuls twice a Day for nine Days together, and apply the Magma (or Herbs after they are squeezed out of the Liquor) to the Wound.

You see Dr. Bates was, like the Rest of the World, infatuated with an odd Number, or else he has order'd it so to be taken in Compliance with the old Use and Custom, which I must own I shall not undertake to alter; tho' I hope I am at Liberty to use my Senses and judge reasonably, let old Use and Custom do as they please.

Mr. Hill's
Secret for
the Bite of
a mad Dog,
not always
successful.

There is one Mr. Hill of Ormeskirk in Lancashire, who pretends to a rare Secret for the Cure of *venomous Bites*, particularly those of a *mad Dog*, *mad Cat*, &c. and I am told, his Medicine is in Form of a Powder; tho' I can't say it was ever pretended to cure any one when the Symptoms of Madness had really seized them, notwithstanding I had the Curiosity to make a strict Enquiry of its Success. But I was told that the late Earl of Derby had most of his Hounds bit by a *mad Dog*: And as *Knowsley*, the present Seat of that Ancient and Noble Family, is in the Neighbourhood of Ormeskirk, his Lordship thought fit to try Mr. Hill's Secret. An equal Number of them took the Powder; and as many more, equally affected as far as could be judged, took the Decoction of Rue, Garlick, &c. as aforesaid, by the Management and Direction of Mr. Serjeant the then Cook at *Knowsley*, from whom I had the Account. In fine, Five out of Nine of Mr. Hill's died, and those under the Cook's Care all recover'd. But then it may be objected, that Mr. Hill's Secret does not operate upon *Men* and *Dogs* in the same Manner; but such Objection would, to any Man of Sense, look very absurd and ridiculous, seeing, as I have often hinted, nothing is more sure than that the Operation of Medicine is mechanical, and that therefore it will act by the same known Powers, let the Subject be human or brute Creature. Dr. Lyster has treated very learnedly upon these *venomous Bites*, &c.

Sir William Hope, Author of *The Complete Horseman or Perfect Farrier*, has here and there set down something in the curative Way worth observing, but in general he is very insipid and insignificant as to this Particular: And in treating of *venomous Bites* he has the following Observation, *viz.*

“ There are certain venomous Creatures resembling Mice,
“ which breed in rotten Straw, the Bitings of which are fatal
“ to Horses and Dogs, and when a Cat eats them, she dies in
“ a kind of Consumption. If they bite a Horse in the Pastern
“ or Fetlock-joint, the Part swells, extending the Tumour to

“ the

" the Hough, Cods, and Fundament; and without timely Assistance the Horse dies in forty eight Hours. If they bite the Belly of a Horse, the Tumour either rises towards the Throat, or extends to the Sheath, and quickly kills him."

Thus far Sir *William Hope*, tho' I can't say I ever knew any thing happen to a Horse, whereby one might suppose him bit by one of these Mice; nor do I find, that any of the ancient Authors mention it. Yet I have had Cats, that have died frequently in a Kind of lingering Way, which indeed might be called consumptive; and tho' young, wasted, and refused Food to the End, without my being able to guess at the Distemper. But I always supposed they might have eaten some Mouse or Rat that had taken *Rat's Bane*, &c. And got so much of that Poison as might make them linger and die, tho' not very hastily. But I might be mistaken, and the Cats may have eaten some of Sir *William Hope's* Mice. Therefore take his Receipt for the Cure of this Sort of Bite.

" If the Bite be in the Leg, tye a Ribbon or Garter of the Breadth of an Inch above the Swelling to stop its Progress; and beat the swollen Part with a Branch of Gooseberry Bush, till it be all over bloody: Then chafe it with a large Quantity of *Orvietan*" (I do not know which *Orvietan* he means, unless that in *Bate's* and *Quincy's Dispensatories* under the Title of *Electuarium Orvietanum*) " or *Venice Treacle*, exhibiting inwardly at the same time an Ounce of either the *Orvietan* or *Venice Treacle* in Wine; the next Day anoint again and exhibit half an Ounce of the same Remedy. After which untie the Garter, chafe the Leg with Spirit of Wine, sew a Cloth dipt in the same Spirit about the Swelling, and after that rub the Part with the *Duke's Ointment* to assuage the Swelling."

I have look'd over the Ointment which he's pleas'd to style the *Duke's Ointment*, and find it compounded of Linseed-Oil, Flowers of Sulphur, and Hog's Lard or Horse's Grease, which latter Sort Sir *William* fancies must be best; tho' in the main there is scarce any Difference in the Effects of the Fat of Animals, I mean Quadrupedes; but Vipers Fat is of all others the most penetrating, and what no large Family should be without, seeing it has most Right to claim something extraordinary in curing not only the Viperine Poison inflicted by a Bite, but likewise all other venomous Bites; for there is no manner of Dispute to be made but the deadly Mischiefs following such Bites proceed from the small and pointed *Spiculae* contained in the Juices or *Saliva* in the Mouth. And of this any one may be convinced upon looking at the Venom of several noxious Animals with a Microscope, when the same is floating upon a *China* Saucer or the like.

Sir *William Hope's* Cure for the Bite of venomous Mice.

Vipers Fat excellent for the Cure of venomous Bites.

Dr. Mead enraged a Viper, and caused it to bite a young Dog in the Nose so hard, that both the Teeth were struck deep in; he howl'd bitterly, and the Part began to swell; but upon Application of the *Auxungia* or Fat of the Viper, which was ready at Hand, he was very well the next Day: But lest it might be thought that the Dog's Licking his Nose might cure him, he was bit a second time in the Tongue, and upon forbearing the Remedy, he died in four or five Hours after the Bite. The same Trial was made with like Success upon other Dogs. But for a full and truly satisfactory Account of *Poisons*, I must refer the Reader to the Doctor's Essay on that Subject. And I must esteem those very unhappy who have not seen that excellent Piece.

C H A P. XXXVIII.

Of Fistula's, old Wounds, &c.

The Signs.

A *Fistula* is any Kind of Pipe: But its common Use is to signify Ulcers that lie deep, and ouze out their Matter thro' long, narrow, winding Passages. In which Cases the Bones are frequently affected with Rottenness or Blackness, and the extreme Parts or Lips of the Wound, as well as many times the Inside of it, are callous, horny, and hard. These Wounds are commonly narrower at the Mouth than at the Bottom, and send forth thin Matter commonly called *Ichor*.

The Cause.

A *Fistula* is often occasion'd from the ill Healing of a Wound; sometimes it comes from a Crush from the Saddle; and, as I have observ'd, these troublesome Ulcers are most commonly in the Withers: And if they pass down between the Shoulder-Blades and Ribs, as is often the Case, they are very difficult of Cure, by reason there's no coming at the Bottom of the Wound.

The Cure.

The first thing to be done, is to search or probe the Wound with a leaden Probe that will easily bend, or with a Piece of small Wax Candle; and, if the *Sinus* or Cavity lye in any Part that can with Safety be opened, it should be done the whole Length of it by the Help of a long, small-pointed Penknife or *Bistoury*, which should be guided along with a small Piece of Iron that's channell'd on one Side, and of a fit Length. After the Hollowness or Cavity is quite open, you must feel with your Finger up and down for callous, horny, and hard Substances; for the *Ichorous* Discharge from these old Wounds is of such a corrosive Quality, that it causes the *Sinus* or Cavity to become horny and hard in order to defend the Vessels, &c. from the farther Corrosion of it, and in this Particular it is like a Shield of Defence. But all this callous Substance must be

be taken away either by the Knife, actual, or potential Cautery; tho' I take the first to be the quickest and best Method; if it can be done, yet in many Cases we are obliged to burn away the Callosity with the actual Cautery; and even where this cannot be comply'd with, some corrosive Powder or the like is made use of. Therefore, first destroy the callous or horny Substance to the very Bottom of the Wound; then apply the following Water and Unguent.

All the callous Substance to be consumed before the Fistula can be cured.

Take a Pint of Lime-Water made very strong; and put to it of The Fistula corrosive Sublimate, two Drachms; stir these frequently together Water. for some Days; then pour off what's clear, and add Spirit of Wine, four Ounces. Mix.

With this Water the Wound may, with a Bunch of Feathers, be washed for a Week at the Beginning, but its Use should not be continued too long together; for tho' 'tis a good Cleanser of old Wounds, yet after all the Hardness is eaten away (as 'tis call'd) proper Ointments are sufficient. Therefore you need only now and then wash the Sore with it to hinder fungous or proud Flesh from generating; this Water being a great Enemy to any such soft Substances, and, I dare say, would cure what the Cow-Leeches term the *Foul* in a Cow's Foot, by using it as they do Oil of Vitriol, which in my Thoughts, is not near so safe. To cure the Foul in a Cow's Foot.

I hope it will be remembered, that I directed the Opening of Wounds according to the Direction of the animal Fibres, especially where there is not a good deal of muscular Flesh: But where this is in Plenty, it cannot do much Harm if the Sinus or Cavity be opened a little cross-wise for the smaller Kind of Fibres will unite well enough to perform the Action of the Muscles; but no such thing can be done where the Cavity runs among the Tendons, or extreme Parts of the Muscles, unless the same lye only Skin-deep, and then indeed it may be laid open as the Operator finds it most needful.

When all is done which I have directed, let the Wound be dress'd once or twice a Day, (according to the Quantity of Matter it discharges) with the following Unguent.

Take common Tar, two Pounds; common Turpentine, half a Pound; Honey, six Ounces; Yolks of Eggs, Number ten; melt the Tar, Turpentine, and Honey together, and when they have stood till they are only Milk warm, stir in an Ounce of the best French Verdigrease in fine Powder, and mix it so long that it cannot sink down to the Bottom. Ointment for a Fistula.

If you would have it a little more stiff or of a thicker Consistence, you may add half a Pint of Wheat Flower; but, in my Thoughts, 'tis better to be thin; and then with a few Feathers tied together the whole Wound may be anointed with the

Ointment very warm, as often as there is Occasion. And lastly, cover with Tow and Pledgets.

A Case of a Fistula in the Withers cured.

I remember to have had a good old Horse, which I much valued for his past Services: He had a large and hard Tumour or Swelling upon his Withers, which is the joining of the Shoulder-Blades before the Saddle. It continued for some Months, without tending in the least to suppurate, but remain'd fix'd and hard, and at last grew so big, and contracted the large back Sinew of his Neck so much, that he could scarcely stoop to eat Grass. I then apply'd to a Farrier, who had had a deal of Experience, to know what he thought of the Matter; tho' I did not design religiously to pursue his Method unless I judg'd it reasonable. Upon handling the Tumour, he told me, in a very honest Way, that I had better knock the Horse o'th' Head and dispatch him at once, rather than be at Expence and Trouble with him to no Manner of Purpose; so that he thought him absolutely incurable, the Tumour was so large and of such a hard and horny Nature: And farther he said, he had Reason to believe the same a Fistula, which penetrated deep between the Shoulder-Blades and Ribs.

This Sentence I thought a very harsh one pass'd on my old Servant, by one of the better Sort of Practisers in his Way. However, I told him, if he would operate with his Knife, I would direct it; seeing he thought the Horse fit for nothing but trying Experiments upon. This he very readily consented to, for it was my old Friend the Farrier (whom I have often mentioned) that wrought for me, and I for him, so that We Doctors never took any Fees from one another, as the facetious and lucky Prognosticator Dr. Radcliffe merrily express'd himself to an Operator of this Kind. In short, we cast the poor Creature, and after securing his Feet, &c. I made the Farrier cut a Hat's Crown full of horny and hard Flesh from about the Withers; insomuch that my Friend cried out to stop, or we should cut the *Fix-Fax* of the Neck (as he call'd it) which is the large and strong Tendon that supports the Head. This I thought a good Observation of the Fellow, who had (as every one should). in his Mind the Parts concern'd in the Operation: But I bid him proceed, for that we were yet safe enough from what he apprehended. When he had cut as much of the callous Substance away as I judg'd necessary, I order'd him to search the Wound for a Cavity or hollow Part, which he usually did by a kind of crooked Horn like the Antler or Branch of a Stag, when he discovered a Fistula which seem'd to run along towards the Shoulder Blades, tho' I was in Hopes it was not very deep for Reasons too tedious to enumerate. This done, the next thing to be considered was the sound Healing of the Wound, and at as easy an Expence as might be, lest the Cure should be worse than the Disease;

for

for he was then a Horse of small Value, and if kept at Hay, &c. would soon have eat his Head off, as the common Saying is. I therefore ordered him to Grass, (for it was in Spring Time,) and that in such a Pasture where he should have something to bite at; otherwise the Healing of the Wound would be hindered by his continual Stooping and Labouring for his Living. The Wound was dress'd twice a Day with the Ointment as above, only a little Soot was added to it to make it more detergent, and also more offensive to the Flies, &c. After the Ointment, we covered the Shoulders with Tow, and a Piece of thin Sacking over all fastened behind his Shoulders under his Chest and before his Breast; and in this Manner he was cured in a reasonable Time, doing much good Service afterwards.

I kept my Friend the Farrier for some Time in Ignorance and Suspence about the Ointment, but rather than I would lose his Custom, tho' he gave me no Fees, I told him how to prepare it, which was as before directed.

I hope I need not enter into a Dispute, whether unctuous or oily, or cleansing and absterfiv Applications are most proper and cleansing for the Cure of Fistulous Ulcers, old Wounds, &c. seeing I have sufficiently shewn in my Notes upon Captain *Burdon's* Pocket Farrier, that the latter are much preferable, and the former to be rejected, as such Things breed proud Flesh, &c. Neither is Syringing any kind of Liquors, or passing a Rope or Hair Rowel thro' the Sinus or Cavity, in order to drain off the Humours, of any Avail in these Cases; and there are very few Instances wherein the Use of Tents are not prejudicial for any or all of these much oftener create than cure a Fistula. Therefore the most ready and effectual Method is the Knife and Fire, both which agree better with the Nature of a Horse's Flesh than Injections, Rowels, or Tents.

That giving the Fire is of the greatest Service in many Cases, both in human and brute Creatures, no one need dispute; being we often find that the *Sciatica* or Hip-Gout, and long settled Pains and Lameness in the Joints, &c. of the latter are often removed by it, when given to the Purpose; or in other Words, when the pain'd Parts are cauteriz'd as deep as their Situation will allow, and according to the Urgency of Symptoms, both which must guide the Hand of the Operator.

I could recount many obstinate Pains and Aches in the Joints, &c. of human Bodies, which have been remov'd and often quite cured by the Use of the actual Cautey. And I once knew an empirical Fellow that travell'd the Country making it his Business to remove such Complaints, which he mostly did by applying Caustics to so great a Degree, that I found he put on *Ten* at a Time to cure a certain Landlady at *Osley* in *Yorkshire* of an obstinate *Sciatica* and Rheumatism, which

Absterfiv
ing Applica-
tions prefer-
able to
unctuous or
oily.
The Use of
Tents pernicious;
Knife and Fire better.

Giving the
Fire, of
great Service
to both human
and brute Creatures.

which he did effectually; for when I saw her she had been three Years well and free from her Pains, and said she hop'd to continue so, tho' her Issues from the Caustics were all dried up.

The *Arabians* were very sensible of the great Usefulness of the actual Cautery in many Cases, particularly *Alfabaravius*, who as the late ingenious Dr. *Friend* tells us is the same with *Albucasis*, mentions fifty Distempers where it may be of Service. And *Prosper Alpinus* remarks, that in his Time Ustion or Burning was the Remedy most used, and was most depended on for inveterate Pains and Aches amongst the *Egyptian* and *Arabian* Horsemen, who, living chiefly in Tents and Desarts were no doubt very liable to vagous and wandering Pains, &c. And really I am surpriz'd the actual Cautery is not more in Use at this Day, seeing there are such good Reasons for it. But, when Physicians and Surgeons are so timorous, either for the present Ease of their Patients, or in Diffidence to their own Judgments, we must expect several Cures will be perform'd by Empiricks and Quacks, who venture upon rougher, yet more effectual Means. Witness *Ward's Pill and Drop*, which is a singular Instance of this Truth; for the same being Preparations from Antimony several very notable Feats are perform'd by them especially in dislodging Gouts and other Humours, which obstruct the Glands and smaller Passages. And tho' we well know why the Pill and Drop effect this and that Cure, yet, forsooth, because Antimonial Preparations are accounted rough and harsh in their Operation, they must be excluded the Shops, to oblige the present delicate Age, who rather choose what they ignorantly stile a *safe Man*, than one who prescribes more effectual Medicines, and moves upon a more certain Basis, and much better Philosophy.

I see no Harm in Firing or Cauterizing young Colts, that are slender legg'd, upon the back Sinews, before they are lam'd, and absolutely require such Operation. For it was a Practice amongst the *Eastern Bowmen*, before the Use of Fire-Arms, to do the like upon the brawny Part of the Arms of most of their Youth, that they might become stronger, and shoot their Arrows with more Force.

I need not farther enlarge upon the Manner of giving the Fire, seeing it is sufficiently known and practis'd by Farriers: Therefore I must now proceed to *Rowelling*, &c.

CHAP. XXXIX.

Of Rowelling Horses.

I ONCE thought not to have made a particular Chapter upon *Rowelling*, seeing I have in my Notes upon *Burdon* given

given my Reasons when the same is useful, and when otherwise; but lest that small Piece may not be in the Hands of every Subscriber to this Work, I beg to be heard a Word or two upon the Subject.

And *first*, tho' Rowelling be the most common Thing amongst Farriers, yet I never met with one could give me any satisfactory Account of the Use or Abuse of such Drains. But they all in general tell you that a Rowel is to draw off the bad or corrupt Humours from the Blood; so that Fat or Lean, Lame in the Hoof, or Lame in the Shoulder, Hide-bound or Hoof-bound, Rowelling is the Cure, according to their Way of Reasoning.

Rowelling is an artificial Vent which is made between the Skin and Flesh, in order to make Revulsion or Derivation from any Part that is weaken'd or relax'd by old obstinate Obstructions. And for this Purpose, it is useful in many of the same Intentions as the actual Cautey or Firing treated of in the preceding Chapter.

It is good in all Aches and Pains, cold phlegmatic Swellings, and sometimes Lameness and Infirmities of the Legs. It also gives Relief where there is a Fullness and Redundancy of Humours, and in Defluxions of Rheum upon the Eyes, &c. But it is prejudicial to lean Hide-bound Horses, which cannot bear any such Discharge. And, as I said in my Notes upon *Burdon*, the Horse might as well, nay better, lose as much Blood every Day, as he does Matter by the Rowel: For it is certainly and with as much Propriety of Language called *Cruor*, as that in the Veins is called *Sanguis*, barring the Colour, which makes no very essential Difference. And I am very much of Opinion, that several Cures are wholly attributed to Rowelling, when Rest and Patience are the principal Instruments or Agents that perform it. However, *Qui vult decipi, decipiatur*.

Rest and Patience very often perform the Cure, tho' it is attributed to other Things.

CHAP. XL.

Of the Lampas, Barbs, Wolves-Teeth, Splents, Spawins, Ring-Bones, and Curbs.

THE *Lampas* is by the Farriers defined a filthy Lump or Excrecence in the Roof of the Mouth, so that upon opening the Horse's Mouth, you may perceive that the Roof rises more or less above the Teeth. The Signs of the Lampas.

This Disorder (as 'tis call'd) is common to young Horses, the Roofs of their Mouths not being of so harsh and dry a Nature as those of old Horses. And, tho' 'tis said, that the Flesh will rise so high above the Teeth that it will even scare him from his Oats, &c. yet I am still of Opinion that Nature is not often luxuriant

luxuriant above Measure in this Particular, as the common Farriers, Blacksmiths, &c. would make us believe. Nor is there, in my Thoughts, so often need of cutting out the Lampas. The *French* cure it by rubbing the luxuriant Flesh with a hot roasted Onion lap'd in a Clout; but for my Part, I cannot see of what Benefit such Application can be to destroy or waste the Lampas in a Horse's Mouth.

I have had many young Horses, yet never any cut for the Lampas, tho' the Roofs of their Mouths were as fleshy as other People's Horses; and I never could see that it did any real Service to cut them out; so that it is plaguing and tormenting the poor Creature to no purpose, and satisfying the ignorant Farrier, and more ignorant Master or Owner. Besides this, it makes the Horse bear a Mark or Testimony of old Age before his Time; an old Horse's Mouth being naturally harsh and thin of flesh upon the Roof: Therefore 'tis well we have so many Marks, which should all or most of them correspond for our Satisfaction to signify to us a Horse's Age; otherwise we might often be obliged to keep those, which we had most Mind to part with, by Reason *Chapmen who measure others Corn by their own Bushel*, would not believe us when we said he had been cut for the Lampas, and so would deem him an aged Horse.

Barbs are small Excrescences under the Tongue which may be seen by drawing it aside a little, and are cured by Cutting them off as close as may be; but as to Rubbing the Place with Salt afterwards, there is not much Reason or Occasion for it, tho' 'tis commonly used for this and many other Ailments, wherein it cannot be said to share any Thing of the Cure; therefore I think a Sponge or Rag dipt in Brandy or Spirit of Wine is better, frequently to wash the Sores withal, after cutting off the Barbs.

Wolves-
Teeth.

A Horse is said to have Wolves-Teeth, when his Teeth grow either Outwards or Inwards so, that their Points prick and wound either the Tongue or Gums when he eats. Horses in their decline of Age are most subject to this Infirmary, by Reason the Teeth grow long, or in other Words, they are not so much cover'd with Flesh at the Roots, as a young Horse's. And when the upper overpasts the under Teeth in a great Degree, 'tis then he may have what the Farriers call *Wolves-Teeth*.

The Cure.

If you would remedy this Evil you may either chip off the superfluous Parts of the Teeth with a Chizzel and Mallet, or, which is better tho' longer in performing, File them down first with a rough, then with a smooth File, till such Time as you have wasted them sufficiently. After which 'tis directed by Farriers to wash the Mouth with Vinegar and Salt; tho' warm, or even cold Water is as effectual in removing the small Pieces of Bone, and that is all which is required.

Splents,

Splents, Oslets, Spavins, and Ring-bones, mostly owe their Formation to one and the same Cause, to wit, Bruises or hard Exercise, and some have it from their Sire or Dam, yet there is no general Rule without an Exception. However, tho' I told the World in my *Notes upon Burdon*, that Horses troubled with Spavins, Ring-bones, &c. might get sound Colts, yet I would not have such Expression constru'd in too large a Sense; for as those Notes were writ in Haste, and the Subject couched in as few Words as possible, it must not be expected that every particular is touched upon. Therefore I must now declare, that altho' such Horses may beget sound Colts, yet I would not put a Mare to either a blind Horse, (especially if he went blind without Accident,) or to one which had a Spavin or Ring-bone. But as to Splents, Oslets, &c. I do not call the Horse unsound tho' troubled with them, for these mostly wear off by Time.

Every one knows that Splents are hard Excrecences which grow upon the Shank-bones of Horses, and they are more or less dangerous as they are big or little, but there are few young ones without some.

Oslets are of the same Nature with Splents, situate near the Knee on the Inside, and are said to grow out of a Gummy Substance about the Knee.

Oslets are only distinguishable from the Knee itself by being a little lower. And these as well as Ring-bones, Bone-spavins, &c. before they become of too hard a Nature, may be made to yield to Remedies.

The Cure of all these bony Excrecences, is, in my Thoughts, first, to beat them with a bleeding Stick for some Time; then prick or wound the Part with a small Bodkin made hot, and rub in some of the best Oil of Origany; after which clap on the following Charge.

Take Ethiops Mineral, one Ounce; common Turpentine, six Drachms; Burgundy Pitch, one Ounce; Spanish Flies in Powder, two Drachms; Gum Euphorbium, two Drachms; Corrosive Sublimate in Powder, half a Drachm. Mix. Shave away the Hair, and apply this warm and thick either Spread upon Tow or Leather, and bind it on for some Time 'till it offers to come off easily, after which heal the Wound with the green Ointment (p. 193.) Some give the Fire in these Cases with Success; but I believe the Method I have set down has cured more than any other, and if it fail I think Firing will not work a Cure, nor would it do before, if the Excrecence be of such Hardness, as that it will not yield to the above Application, &c.

It is worth observing that these Kinds of bony Excrecences must either be nipt in the Bud, or they will soon become of such Firmness and Solidity, that they will not yield to one Thing or other

other, and that by Rubbing and beating them with a Stick of any Sort of Wood, tho' some advise *Hazle* as the best, the hard Substance is brought soft as Jelly, and will therefore more easily be disperfed or dissolved by the Plaister, &c.

Bone-Spavin and Cure.

I shall not enlarge upon the Subject of these bony Excrescences; for the same Method, which will cure a Ring-bone or Oslet, will do in Case of Bone-spavins, only in the Cure of the last it may be proper to keep the Back-sinew well oiled now and then with Oil of Swallows for fear the same contract too much, which it will often do when the Fire has been given deep: But if the Method I have set down be practised, there is not near so much Danger of Contraction.

Blood-Spavin.

The *Blood-Spavin* is a Dilatation or Swelling of a Vein on the Inside of the Horse's Hough, and in Human Bodies we call this Disorder a Varicose-swelling, where the Blood in the Vein turns into a Kind of Eddy, and forms such Tumours.

The Cure.
One Thing very material to be observed in making a Ligature upon any Blood Vessel.

The Cure of a Blood-Spavin is the same as that for an Aneurism or Dilatation of an Artery, only one Thing material must be minded, in which the tying up a Vein, and tying up an Artery, differ in an eminent Degree; for the Arterial-Blood circulates from larger into smaller Vessels, but the Venal Blood from smaller to larger; so that if you tie a Vein above the Hough, without tying it also below, the Tumour must necessarily increase as the Blood meets with Resistance at the Ligature; for the Veins carry back to the Heart the superabundant Blood from the Arteries. Therefore a Vein must be tied below, and an Artery above the Hough, to cure a Swelling or Dilatation, of which I am now treating; and really no one Thing is more common amongst the ignorant blundering Farriers, than to tie up a Vein on the wrong Side the Varicose-Tumour; for these fellows have no Notion of the Difference between a Vein and an Artery. Therefore they imagine that all the Blood-Vessels are alike, and convey that Fluid from the Heart to the extreme Parts of the Body without carrying any of it back again.

From what has been said it may be observed, that the Cure of a Blood-Spavin consists in dissecting the Skin and muscular Flesh off the Vein, but so as not to cut any, or however very few, of the Carnous Fibres transversly. Then pass a Piece of strong Silk doubled and well waxed with Bees-wax both below and above the Tumour, which is performed with a crooked Needle not very sharp, with an Eye in the Point sufficiently large, that the Thread may leave it easily. And when the Blood-Vessel is well tied both above and below the Swelling, cut it in two in the Middle, and heal the Wound with the common green Ointment, (p. 193.)

Giving the Fire in the Cure of a Blood-Spavin unnecessary.

Some Farriers give the Fire after tying up the Vein, but I think such Practice unnecessary.

Curbs.

Curbs are Swellings on the Sinewy Parts of the Hind-Legs, a *Curbs* little below the Elbow of the Hough, but somewhat higher than the Spavin, on the Inside, and is generated from the same Kind of Glutinous Matter that nourishes the *Ligaments* and *Tendons*, or what the common People call the Sinews. It is indeed a kind of bony Excrecence, of the *Spavin*, *Splent*, or *Ring-bone* Kind, and may (while in Infancy) be dissolved in like Manner as those Tumours of the Bones, which I have given an Account of in this Chapter, but if the Excrecence be old and harden'd, I much question whether there be any Helps or Means to dissolve these Protuberances of the Bones, which generally proceed from using Horses too young, or violently straining them before the Sinews of the Legs are by Age and easy Exercise sufficiently harden'd to endure Fatigue, and therefore provident Nature, which is always striving to make up our Deficiencies, supplies Matter to the Part that is most in want, for as the strong *Sinews* of the Hind-Leg, called *Magna Corda*, happens to be over exercised, it is therefore that Glutinous Matter is furnished to the Part where it passes over the Hough, and if it chance to be supply'd in too great Abundance, 'tis then *Curbs*, &c. are produced, which often increase to such a Degree, that the bending of the Hough is in some Measure impeded.

C H A P. XLI.

Of the Poll-Evil, Bruises in the Withers, Warbles in the Back, &c.

THE Poll-Evil is a Swelling of the Nape of the Neck, or The Poll-Poll of the Horse just behind the Ears. *Evil.*

This often proceeds from Crushes and Bruises either with the The Cause. Halter or some other hard Body; and sometimes from ill Humours: But as I have observed mostly from the Halter's crushing this Part of the Neck, when Horses are unruly in breaking, shoeing, &c. Therefore 'tis good to lap Colt-Halters with Lifts to make them soft and easy.

The Cure is much the same as with a Fistula, (*viz.*) to lay The Cure. the part Open, where it can be done with Safety, and apply the Fistula-Ointment, &c. very warm: But if the Pole-Evil be not taken in Time, it degenerates into a hollow crooked Ulcer, full of sharp Humours, tho' this mostly falls out for want of Care in the Beginning; and when the Bones of the Neck are become foul and decay'd, I much question if there is any Cure. However if the Matter discharged do not partake of an ill Smell, &c. Oil of Turpentine poured hot into the Sinus or hollow Wound once a Day, and rubbing the Swelling with the following Ointment, is most likely to succeed.

Oil of Turpentine good for the Poll-evil.

Take

The Ointment for the Poll-Evil.

Take Oil of Bays, half a Pound; Oil of Turpentine, two Ounces; Quick-silver, three Ounces. Mix.

The Quicksilver should be well kill'd (as 'tis call'd) in the Oil of Turpentine when mixed with the Oil of Bays, 'till none of its Particles can be discovered with the naked Eye. Rub the Swelling twice a Day, and cover the Neck with Flannel, or a good warm Cap-hood.

Tents improper in most Cases.

Tents of any Kind are seldom or never proper in the Cure of the Poll-evil, for they cause the Ulcer to become fistulous. Therefore Incision or Cutting open, where it can be done, is best, and where such Operation is impracticable by Reason of the considerable Branches of Nerves, Tendons, or Blood-Vessels, then a Tube or hollow Pipe made of Lead turn'd down at the outermost Edge, and Holes bored thro' it, to tie two Strings, so that they may be fastned round the Neck in Order to keep it in for the Matter to run thro', 'till the Wound gradually heals by the Applications prescribed. But one Thing is to be observed, to wit, that all Tumours, Abscesses, Hollow or Sinuous Ulcers should be open'd, either by the Knife, or by Caustic, in the most depending Part that can safely be come at; that so the Ichorous Matter may run off before it require so great a Degree of Acidity, &c. as to corrode the Bones and other Parts, and so cause a troublesome running Ulcer or Fistula.

Withers of a Horse, where situate.

The Withers of a Horse, is the joining of the Shoulder Bones before the Saddle, and those Horses, which are thin shoulder'd, as 'tis call'd, are most subject to be wrung in the Withers by such Saddles as are wide in the Tree, or want Stuffing; and really it is scarce possible one and the same Saddle should rightly fit several Horses, whose Backs differ as much as Human Faces. Therefore I advise every Person to be so far prudent, for the poor dumb Creature's Ease, and his own Safety, as to have his Saddle rightly fitted to the very Horse's Back which he is to ride the Journey upon. And if the Saddle want Stuffing, then to mind particularly, after one or two Days riding, whether the same do not bear upon the Horse's Withers; for the new Stuffing will settle much, and it is a great Piece of Ignorance and Folly for any one to feel at the Saddle or Horse's Back while he is in the Stable, whether it hurts or wrings his Withers, for by such Tryal he may be deceived. Therefore let him mount, or set a heavier Man upon the Horse, and let him try if he can get the breadth of two Fingers between the Withers and Saddle, which Space is sufficient; for if it fit too high 'tis a great Fault, because it wrings him the Points, and will make him travel with Pain and Uneasiness, besides bruising the Flesh, and causing him to carry the Rider's Weight in a wrong and very improper Part: For if the Saddle be too narrow in the Tree, or the Pannel have too much Stuffing-in at the Points, in such Case the Horse cannot be said to carry the Weight upon his Back, but rather

The Author's Opinion upon Saddles, &c. proper for a Journey.

rather upon his Shoulder-Blades. And altho' many jejune and frolicksome Riders mount a Horse for a long Journey without first having the Saddle well fitted to the Back; yet it is a Piece of great Indiscretion and bad conduct, to neglect so good and beneficial a Piece of Oeconomy; and whoever slights these Precepts, I hope it will be voted *Nem. Con.* that such Rider be obliged to carry his Horse, instead of his Horse carrying him, or at least to walk half of the Journey on Foot. And so far I must speak in my own Commendation, as to the Particular of saving the Horse I ride from being wrung or hurt in the Withers, that tho' I take good Care of my Saddles, yet I cannot ride five Miles an End, without feeling now and then with my Fingers under the Saddle next the Horse's Withers whether it fit down, (as 'tis call'd.) Furthermore it is most easy for a Horse to travel and carry his Weight upon a good large seated Saddle, and the more so, if the Person who rides him be fat and bulky; for then he may be truly said to carry his Weight in so great a Compass, as that it will not gall or fret his Hide, &c. Therefore how preposterous and unnatural must it be for a heavy man to ride upon a Cockney-Saddle, which may fitly be compared to a silly Man carrying two Buckets of Water upon his Shoulders with a round Pole, instead of a flattish one hollowed and mechanically fitted to receive his Shoulders. If the Horse be young and his Back not used to the Burthen, it will be the more necessary to ride him with a large Saddle, that his Back may not warble, or however as little as possible; for if the Weather be hot, and Journey long, it will be exceeding difficult to keep the Back of a young Horse from galling: However, the best Method is a large Saddle often scrap'd with a Knife, beaten and clean'd upon the Pannel from Sweat and Dirt, and the Horse's Back bath'd every Night with a little cold Water wherein some Alum has been dissolved. And it may not be amiss every Day at Noon to take off the Saddle, and cool his Back by only throwing a single woollen Cloth upon it. Nor is there much Fear of catching Cold from these Practices, if the Rider only consider the Season, and cover the Horse's Back more or less accordingly, while the Saddle is off: For if we consider the Thing rightly, we must know that it is the Motion and heat of the Saddle which causes a Kind of Blistering upon the Horse's Back. And tho' it may be imagined, by some short-sighted Folks, that a large Saddle is too hot, and will sooner gall a Horse than a small one, which (to them) seems much cooler; yet 'tis plainly the contrary, and every Days experience shews, that large Saddles are not only easier, and in Reality cooler to Horses Backs; as well as much more easy and safe to all Men who are not accusom'd to top a five-bar'd Gate, than the small Sort can possibly be. And if, instead of the Follies and Fopperies of a certain neighbouring Nation, we imita-

Scotch Car-
riers load
their Horses
without
PackSaddle.

ted them in their Way of saddling Horses only, we should not be so deservedly laugh'd at as I'm afraid we are. I could farther enlarge upon this Point, and shew the Scotch Carriers Cunning, or rather Dexterity in saddling their Horses, and making them carry much heavier Packs without, than our Carriers can with Saddles: But I hope what I have said is enough to convince any reasonable Man, that a large Saddle is easier and more convenient than a small one both for Man and Horse. Permit me now to proceed to the Cure of a sore Back from a Crush with the Saddle.

If the Saddle be altered in due Time, I mean before the Blood Vessels, &c. are all crushed, the best Application must be camphorated Spirit of Wine; but lest the Apothecaries you get it from should have a Spice of the K——e in them, when Camphire happens to be dear, you should buy the Spirit of Wine and it separate, and then you are safe. Therefore I shall set down the due Proportion of Spirit and Camphire fit for this Purpose.

Spirit of
Wine cam-
phorated.
Crush on the
Withers
cured.

Take Spirit of Wine rectified, four Ounces; Camphire, fix Drachms. Mix.

By the continued Use of this three times a Day for a few Days, and removing the Cause of the Complaint, viz. the Pressure of the Saddle Bow upon the Withers, I dare say the Swelling will disperse; but if it turn to Matter or grows soft and fuzzy, then it must be opened for fear of a Fistula, and cured with the green Ointment, &c. p. 193.

Every one has his *Nostrum* or Secret for the Cure of a crush'd Back; such as a cold Sod of Earth, Bole Armoniac, White Wine Vinegar, and Whites of Eggs commonly called by Grooms the cold Charge, or Salt and Black Soap, &c. which any one may try at Pleasure; for, as I have some time ago said, whatsoever is either potentially cold, or so in its own Nature, must be accounted a Repellent, and proper, in some Cases, to apply to Tumours from Heat and Inflammation; nay, even if you come to a *Disclout* by turns squeez'd out of cold Spring Water and apply'd to the Part, it is as potent a Repellent, in my Opinion, as most others which bear a more pompous Title. Yet, by the ill use of Repellents, many and bad Consequences are brought about: But for further Satisfaction I must beg the Reader will take the Trouble of turning back a few Pages, and consider what I have writ down under the general Term.

Of Warbles,
and their
Cure.

Warbles are small hard Tumours or Swellings under the Saddling Part of a Horse's Back, occasion'd from the Heat of the Saddle in Travelling, and are cured by Bathing them often with the following spirituous Mixture.

Take Spirit of Wine, two Ounces; Oil of Turpentine, half an Ounce; Tincture of Myrrh-Aloes, two Drachms. Mix.

A *Sit-Fast* proceeds mostly from a *Warble* after 'tis burnt; and is a Piece of the Horse's Hide turn'd horny or hard by the Heat, &c. of the Saddle. A Sit-Fast, what.

The Cure is perform'd by taking hold of the Edge of the hard Skin with a Pair of strong Plyers, such as are used by Watchmakers, &c. and cutting out the horny Part entirely, and dressing it as a common Wound with the Ointment; *p.* 193. and taking Care to keep the Saddle from rubbing upon it. Therefore, if you are upon a Journey, the Saddle should be chamber'd very nicely, and not carry upon a hard Ridge all round the Sore, but to fall off gradually, or the Horse's Back will be worse hurt than before. The Cure.

It may not be amiss to tell the Reader how he may preserve his own Posteriors, as well as the Horse's Back, from galling, fretting, or excoriating, and herein I should be a pretty competent Judge, not only by reason the Subject is of the human Species, but because I my self, tho' I often ride, am very apt to gall and have the Skin fretted off my Posteriors, unless I take great Care. And even in this we see the great Difference or peculiar Disposition of one Person from another, for some will bear to ride further upon a bare Saddle-Tree without any Cover of Leather, than I can upon a very easy Saddle. How to preserve a Traveller from Galling by Riding.

I have observed lately in the News Papers an Advertisement about a *Powder* for the entire Curing of what I am now about: But the very Title and Account of it bewrays the Thing spurious and insignificant.

The first Thing is, as I have just now said, to ride upon a large Saddle, that your Weight may be carried (let me speak philosophically) upon more Points than 'tis possible, in a little Saddle, to touch upon; and by this you will find that every additional Point, provided you be not quite out of all Reason, will still ease the Places in the Middle where you press hardest upon the Saddle. Large Saddles most easy, after a Person is used to them.

Next to this is often easing yourself by alighting from the Horse, and either walking slowly, or resting yourself upon some easy Seat, and now and then cooling your Buttocks in cold Water to harden the Skin: For it is much easier to prevent, by good Management, the Buttocks from galling, than to make the Skin come on again, upon a Journey. And herein People are as negligent and careless for their Ease, as they are in other Particulars relating to Health; for while their Buttocks are easy and well, they think nothing of a gall'd A--se, than which scarce any thing is more painful, by reason we have so often Occasion to make Use on't. Therefore they mount any Sort of Saddle, and cause an Inflammation before they are aware of it; neither will they apply any Helps, or use any preventive Methods, before 'tis too late. For when by the Fridging, &c. in Riding, the *Serum* or watry Part of the Blood

is gathered between the two Skins, it is then too late to prevent a sore Backside. Therefore, either apply pretty large Plaisters spread thin upon Leather with *Diachylon*, or what's sometimes called *Diapalma*, to the Buttocks, before you really want them, or be content to jog on with a wry Face and sore A--se.

There is a great deal to be said why such cooling Plaister should preserve the Skin from Fretting, or Excoriating, tho' I shall only name a few of its Vertues. And *first*, it thickens your own Skin, or, as it were, adds a new and stronger Scarf-Skin to defend the Ends of the Blood-Vessels, &c. from being heated and inflamed, and hinders the Skin from rubbing into Wrinkles, which is one Reason why we gall so soon.

Secondly, It performs this by a Composition that is very cooling and pleasant, and an Enemy to Heat and Inflammation in the Flesh, and which is in its own Nature drying and healing.

Lastly, I advise these Plaisters be large, and apply'd to the Buttocks as plain and even as possible, and to keep them as much as can be in the like Situation.

I sometimes put them on after I am mounted, and got a little Way into the Lanes, for fear of their running into Creases or Wrinkles while I am getting on Horseback; but fat and unweildy People cannot raise themselves upon the Saddle so as to do this. Therefore they must put them on just before they mount, and keep them even, as I have directed. Furthermore it is necessary to have a Number of these Plaisters ready spread and roll'd up in Boxes for the Purpose, that so you may take a fresh one as Occasion requires; but while the old one will stick and keep from Creases, it will do well enough.

They may be thrown by at Night and the Buttocks cool'd with Blue-Milk and Water, and laid on in the Morning after stretching them a little.

Let them be spread thin and with a small Margin, and by that Means your Linen and Breeches will keep clear of Daubing, &c.

If the Traveller be so very negligent as not to follow these wholesome Directions till the Skin is off his Buttocks, 'tis Pity but it should continue so. However, I must tell him charitably, that nothing will in such Case keep him more easy to his Journey's End, than those very Plaisters, which should be apply'd before the Thing is so far gone. As to this or that Sort of Lining of Breeches, Hare or Rabbet-Skins, and the like, they are only good as they cause the Buttocks to rest more easy upon a hard Saddle; which Sort of Furniture I by no means recommend; unless it were to be used as a penitential Scourge to the Posteriors, in like manner as there are a Sort of Penance-Belts to correct the Sins and Vices of the anterior Parts of the Body.

If I have been tedious upon this Particular, I must beg the Reader's Pardon, having promis'd a worthy Gentleman

A little Saddle compared to a Penance Belt.

of

of my Acquaintance to speak to it in some Part or other of this Book.

C H A P. XLII.

Of a Shoulder-Wrench, Shoulder-Slip, Sinew-Sprain, &c.

BEFORE the Reader enter into this Chapter his Notions and Judgment should be full fraught with the Properties of an Animal Thread or Fibre, for of such are the Muscles, Tendons, &c. concern'd in the Grievance, compos'd. And these Properties have been explain'd before.

Horses above all other Creatures are subject to these Kinds of Ailments, and yet scarce any thing is more difficult in the Art of Farriery than to tell, in some Cases, whether the Complaint be in the Shoulder, Back-Sinew, or Foot: And tho' every Farrier will at the first slight View of a lame Horse pretend to tell you the Affair is in this or that particular Place; yet I would no more believe or trust them than a young, unfledged Physician (who has just received his Dispatches from his College) in the Cure of any obstinate and stubborn Distemper, notwithstanding the Physician and Farrier are alike positive in their Way; therefore if your Horse be lame before or in his Fore-Parts, consider rightly his Way of Going. But first I must inform the Reader, that a Horse's Shoulder-Blades are not fixed to his Body by any Kind of Articulation or Joint, but by Apposition or being laid on along the Side of the Ribs, and there fastened by the Muscles, &c. which lye below and above them; so that when a Horse receives a Hurt in the Shoulder, it is the Muscles, Tendons, &c. which are relaxed or stretched at that Juncture of Time, beyond their natural Tone of Elasticity or Springiness.

If the Lameness be in the Foot (except it be a hot surbated Foot) the Horse will halt more the further he travels; that is, if the Complaint be the Gravel, or a Crush with the Shoe, or Nail that bears too hard upon a Vein, &c. he will not mend by Travelling, but generally goes worse and worse; and if the Roads be hard or rough, he will complain so much the more; tho' in a Shoulder-Strain he will not make much Difference as to hard or soft Roads, and if the Wrench be violent, he will be apt to cast his Foot outwards, forming a Circle as he goes.

If the Ailment is in the Shoulder, he will set his Foot down hardly to favour it, tho' he be turn'd short on the lame Side, which Motion tries him the most of any: But if you cannot yet discover where the Lameness lies, you must have the Shoe off, and his Foot search'd, and squeez'd a little here and there with a Pair of Pinchers, and if his Sole be good he will not easily complain,

complain, unless there be Gravel or a Nail hurt him, or the Shoe sit down too hard upon his Quarters.

Back-Sinew
Strain.

If it be neither in the Shoulder nor Foot, it may be in the Back-Sinew, which may be known by the Roundness of the Leg, or Inflammation and Heat thereabouts; or if not here, yet it may be in the Coffin-Joint, tho' no Swelling or outward Appearance of it can be discovered. I shall now proceed to the curative Intentions.

No Strain
effectually
cured under
three
Months
Time.

In the first Place let it be remembred, that no Strain or Relaxation of the Tendons is sufficiently cured in less Time than three Months; but that if the Horse be continued in Use during the Grievance, it may make him incurably lame. Therefore it is, that Rest, without the Farrier's Applications, avails more than such Applications without Rest. And from hence it may be seen, how improper it is for a Horse to wear a Patten-Shoe, to force him to bear his Weight upon the weak Shoulder. And tho' I am told the Horse is well after such Management, yet I am very sensible he would be sooner cured by pulling his Shoes off, and giving him Rest and Ease.

The Cure.

If your Horse be strain'd in the Shoulder, let him be bled in the Thigh-Vein, and rubb'd with the following Mixture.

Mixture for
a Strain in
the Shoul-
der.

Take Oil of Turpentine, one Ounce; Spirit of Wine camphorated, two Ounces. Mix.

This should be rubb'd well in at twice, half of it soon after Bleeding, and the Rest twelve Hours afterwards, walking the Horse a little till the Heat be gone off.

If you put in more Spirit of Wine than I have ordered in this Mixture it will not be sufficiently warm so as to penetrate deep enough to do good, and if more Oil be made use of, it will be too hot, and cause the Hair to come off, and the Horse's Hide to crack and break as far as the Mixture reaches: Therefore if the Medium be kept so as I have ordered, I believe it will be as effectual as any Thing which can be apply'd, and yet not so hot as to bring the Hair off altho' it be heated in with a hot Fire-shovel.

Captain *Burdon* in his Pocket-Farrier orders Oil of Spike and Oil of Swallows mix'd, to rub a strain'd Shoulder; but these two Oils are of quite different Properties as much as Water and Spirit of Wine; so that by this injudicious Composition, 'tis easy to guess at the Captain's Tether of Learning with Relation to Medicine.

Rowelling
sometimes
proper in
Strains of
the Shoul-
der.

Rowelling is generally the next Thing prescribed after Oiling and Bleeding, tho' I cannot see any great Reason for it, unless the Strain be exceeding violent, and a Flux of Humours brought upon the Part by the Tension and Heat, then indeed I cannot say any Thing against Rowelling under the Belly and in the Breast, which may help to cool and ease the Pain.
And

And in my Thoughts Scoprels or round Pieces of Leather with Holes in the Middle, lapp'd round with Tow, are the most fit and proper in these Cases. But in order to make the Rowel discharge most copiously, let the Piece of Leather with Tow be dipt in the following Ointment made warm.

Take the common green Ointment, (p. 193.) two Ounces; Ointment Cantharides, or Spanish Flies in Powder, three Drachms. Mix.

Every other Day with a small Bunch of Feathers work up some of this Ointment into the Wounds, and it will cause a copious Running.

If the Strain be in the Back-sinew and the same not violent, I think the Application of the following cold Charge may be sufficient with Rest and Patience: But without these I believe the Symptoms will be aggravated.

Take of Bole Armoniac in Powder, half a Pound; White-wine-vinegar, and whites of Eggs, as much as will make it the Consistence of a Poultice. Mix.

Cold Charge for a Strain in the Back-sinew.

Apply it pretty thick upon a Piece of Leather or double Cloth, and as it grows dry put on more 'till such Time as the Tendon or Sinew has recover'd its natural Tone.

There are a great many different Methods, as Captain Burdon's Turnep Poultice, &c. Bleeding in the Sprun-Vein, Poultis's of Cow's dung, and the like: But the cold charge exceeds them all; tho' if the Sinew be much relaxed, or if the Horse be, what the Jockies call, let down in the Sinew, I think nothing comes up to firing: Yet such Horse can never be made so strong in that Part, but a hard Course, or Running a Race upon hard Ground will let him down again, tho' he may perform indifferent well upon a Road, provided he has had a Winter's Running after giving the Fire.

A Winter's Running necessary after giving the Fire for a Strain in the Back Sinew.

If the Lameness be in the Coffin-Joint, oiling with the Mixture for a Strain in the Shoulder, and sufficient Rest may perform a Cure, but I have known these Strains very tedious in going off.

For a Strain in the Couplings, I advise the following strengthening Charge.

Take Pitch and Rosin, of each four Ounces; common Turpentine, three Ounces. Mix. Pour it on warm, and cover the Fillets all over with Tow or Hurds.

Strain in the Back commonly call'd a Sway'd Back.

I have just mention'd the Signs of Lameness in the Foot, and how it may be distinguished from a Shoulder-Slip, &c. But I shall treat of the several Disorders attending that Part of the Body with the Methods of Cure separately in some subsequent Chapter.

The Art of FARRIERY

C H A P. XLIII.

Of the Mallenders, Sallenders, &c.

MALLENTERS are a very sore Thing happening to Horses, making them stumble and go lame.

They are situate upon the bending of the Knee on the Inside, and discharge a sharp thin indigested Matter.

Sallenders
what.

Sallenders appear upon the bending of the Hough, and make a Horse go lame behind.

The Cure.

The Cure of both these Infirmities is performed by washing the Parts with a Lather of Soap warm, or with old Piss; after which apply the following Ointment.

Ointment
for the Mal-
lenders.

Take common Turpentine, and Quicksilver, of each an Ounce; incorporate them well by stirring for a long Time in a Pat, and spread them upon Pledgets of Tow, and dress Night and Morning 'till all the Scabs are fallen off. But if this does not succeed, take the following, which is yet a more effectual Method, tho' 'tis better to cure any Disorder with easier or more mild Applications, if it can possibly be done, for which Reason I just mention'd the Turpentine and Quicksilver.

Another
Ointment
for Mallen-
ders or Sal-
lenders.

Take Flanders Oil of Bays, or for want of that of render'd Hog's Lard, two Ounces; Sublimate Mercury, two Drachms. Mix. Anoint the Mallenders or Sallenders every Night and Morning for four Turns, and I dare say it will cure them, by rubbing with a little Quicksilver mixed with Hog's-Lard afterwards, which should be done in three or four Days, to cause the Scabs to fall off and the Hair to come afresh.

C H A P. XLIV.

Of the Grease and Scratches, Mules, and Kib'd Heels,

I Believe I need not trouble the Reader with a tedious Description of these Distempers, by Reason they are sufficiently known and apparent to every Body.

The Cause.

The Cause of these and such like Disorders is from over Exercise, when a Horse is either over fat or lean, or in other Words, when he is exercised above his Keeping, and has not due Care taken of him in Dressing, Feeding, &c. or when he goes too near, and knocks one Leg against another so as to bruise the Flesh, and cause Heat, Inflammation, &c. in which last Case great Care must be had in Shoeing, that he may be made to go as wide as possible, otherwise these Kinds of Horses will be difficult to manage so as to keep them from the Grease, &c.

If the Grease be an Attendant of some other Disease, such Disease must be cured before the Grease can be removed; for very often it is an Attendant upon the Farcin, Yellows, and other Disorders of the Blood and Humours.

If the Horse be full of Flesh the Cure is to be begun by The Cure. Evacuation, such as Bleeding, Purging, &c. and his Heels always kept clean and sweet as possible, by washing with warm Water and Soap; for nothing promotes the Grease more than Negligence and Nastiness, and as I have told the Publick in my Notes on *Burden*, nothing is better for the Cure of the Grease than a good deal of Elbow-grease properly apply'd when the Sores are kept clean wash'd. But few, very few Grooms will take the true Pains required to preserve a Horse's Legs in order, especially if such Horse is often rid hard either upon the Field or Road. Therefore the Master's Eye and Hand are as necessary to keep his Horse from the Grease, &c. as to see them fed, nay much more so; because a lazy Fellow can sooner toss a Feed of Corn into the Horse's Manger, than clean his Legs by washing with warm Water, &c. as he ought. And in my Thoughts more Horses are greas'd by bad looking to, than by hard Riding, or any Distemper Horses may be supposed to have which may bring on such Malady. Therefore if you have a Horse that is inclinable to swell'd Legs, be sure to chuse as careful a Servant as you can to look after him, for without great Care, as I have said before, no Medicines will effect a Cure.

I believe, out of the many Boys I have had to look after my Horses, I have had but one that could truly be said to be so careful, that you could not grease one whilst under his Care and Management: For altho' he was as I must confess very apt to get too much Liquor, yet drunk or sober he always turn'd his Horses out with clean Heels, so that I could more easily forgive his common Faults. And unless your Servant every Time he goes in to the Stable, or however very often in a Day, rub your Horse's Legs with his Hands after the Legs are dry and clean, you can expect nothing but the Grease from a Stagnation of the Blood and Juices in those depending Parts, for want of such muscular Motion, which by Turns naturally compresses the Vessels when the Horse is at Grass, and thereby forwards Circulation. Therefore I would propose a Piece of wholesome Advice to all those Masters who are troubled with what we call *stiff back'd Servants* that cannot stoop but with Difficulty, which is, that such Masters would turn their Horses to Grass, and allow them the like Quantity of Corn in Summer which they should do in Winter, if they are expected to do great Service, and then I am sure they will not be subject to the Grease, and yet perform a Journey very well.

well, but not look so sleek and fine coated as those which lye in the House.

Proper Exercise the best Remedy.

If you can't consent to your Horses lying out in Winter with a Hovel or Half House for them to run into at Pleasure, where they should have their Hay and Oats with warm Bedding, &c. I think turning out in the Day Time most likely to cure the Grease, or prevent it when threatened, and by what has been said of the Cause, it is easy to judge of the Cure; for as the Grease proceeds from the Blood, and Humours stagnating or stopping in the Limbs, Exercise must be the Remedy to promote the Circulation of the Juices. And this together with keeping the Heels clean wash'd exceeds any Medicine inwardly, or Application outwardly for the Cure of the Grease. The best Exercise is for the Horse to go at large as he pleases amongst the Grass; for if this happens to be in Plenty, or that he walks up and down amongst Weeds, Rushes, Barks, or such like, the Dew which rests upon them, will by falling upon the Horse's Legs so cool and ease the Inflammation and Heat, that I have known many cured this Way.

A large Stall proper for curing the Grease.

Next to turning a Horse out for the Cure of the Grease or Scratches, I am satisfied a large and convenient Stall with good dressing, &c. must take Place. And if your Horse be taught to lye down at the Word of Command, as I have shewn in some former Pages, he will be still less liable to the Grease, Scratches, Mules or Kib'd Heels; for by lying down often, the Blood and Juices will circulate with more Ease in the Limbs, which are then in a Horizontal Posture; so that it is not according to the vulgarly receiv'd Opinion, the Humours which fall down from the Body upon the Limbs which cause the Grease, &c. but the slow Circulation, and the great perpendicular Column of Blood which presses hard against the Sides of the containing Vessels for want of Exercise; or in other Words for want of muscular Contraction which occasions a Stagnation, and of Consequence the Scratches, Grease, &c.

The Jockies Notion of Grease confuted.

It is a very foolish and absurd Notion to imagine a Horse full of Humours (as the Jockies call it) when he happens to be troubled with the Grease, Scratches, or sore Heels; but such shallow Reasoning will always abound, while People's Judgments are merely superficial. Therefore to convince such unthinking Folks, let them take a thick Stick and beat a Horse soundly upon his Legs, so that they bruise them in several Places; after which they'll swell I dare say, and be in Danger of Greasing. Now pray what were these offending Humours doing before the Bruises given by the Stick? And it is absurd to say, that when a Horse travels he raises the Humours in his Body, and then they fall down into the Limbs; whereas it is nothing but his knocking his Legs together, want of Care to keep his Heels clean, and Heat of the Parts occasion'd by a hard

a hard Day's Journey, which for the most Part bring on the Grease, &c. But lest I should be thought singular in pretending to cure the Grease, by Diet, Exercise, and good Dressing, I shall say a Word or two with relation to the Medicines of most Efficacy in such Intentions of Cure. And first,

I don't think Capt. *Burdon's Turnep Poultrice* a despicable Application; for when the Heels are clean wash'd and the Hair cut away, such Poultrice may, by its genial Warmth, and more homogenous Juice, much contribute towards a Cure. But then unless that Horse will lye down of himself or at the Word of Command, the Poultrice will not do so much Service; for it is generally his standing Days and Nights together in narrow bound-up Stalls, which occasions this loathsome and nasty Distemper. Therefore, unless the Grease happens to be an Attendant of some inward Disease or outward Accident, I am of Opinion what I have already said about it may lead any sensible Men to the Cure.

Capt. *Burdon's Turnep-Poultrice* not improper for curing the Grease.

Bleeding, Purging, Rowelling, and most other Evacuations take place (according to Custom) in the Cure of the Grease and Scratches. And when, as I have hinted, this Distemper is the Attendant of some other Disease, which proceeds from a general Fulness of the Vessels, such Discharges are requisite and necessary, without all manner of Dispute: But then again to purge a Horse *within an Inch of his Life*, in order to carry off the Grease with the Excrements, is a Piece of mere Enthusiasm: For what these Adepts imagine to be Grease is the natural *Mucus* of the Guts; which slimy Matter I have shewn to be as necessary in its Place, as the very Blood within the Veins.

Bleeding, &c. necessary.

I must own, when a Horse's Legs are very hot, and inflamed, the Groom may overdo his Part in rubbing them, either with a Cloth or his Hands. Therefore in this Case, Moderation is to be used; and if you will not turn the Horse out in the Day-time till his Limbs are cool'd and made easy, you should order him into a very large Stall, if he is not in one already but what other People think a large Stall, may, in my Opinion, be otherwise. For what I call a large one should be at least six Foot wide, that a tall Horse may shoot out his Legs at Length, that so the Blood may pass along without the Resistances it must naturally meet with, when a Horse lies all on a Heap, or with his Legs under him. Furthermore it is necessary, that a Stable should be so paved that there be not too great a Declivity or Steepness between the fore and hind Parts of the Horse. For if he stand too low with his hind Legs, most of his Weight will rest upon them and give him the Grease, especially if he is in the least inclinable to what we term *gourdy Legs*. And I really believe, if Horses were to stand as low with the fore Feet as they generally do with their hinder

Stall not too steep backwards.

Why Horses grease oftener behind than before.

Tying up
the Thigh
Veins for
curing the
Grease, an
Error.

hinder Feet, they would grease and scratch sooner before than behind; and there can be no other Reason why a Horse should grease sooner behind than before, unless that he is apt to cut oftener in the Place first mentioned.

Some of our ancient Farriers advise the tying up of the Thigh Veins for the Grease: But I by no means approve of such Practice, it being quite opposite to the Intention of Cure, seeing that instead of tying up or stopping a Vein, they had better (were it possible) add another more than there is already, and so the Blood would circulate more easily, when there is a Kind of Stagnation in the Limbs.

I shall not enlarge upon this Head farther than informing the Reader, that a large Stall, good Bedding, clean Feeding, Dressing, and Exercise, along with the Use of the cordial Ball with a little Antimony in it, will most certainly cure the Grease. But to give a Check to and curb the present Evil, turn the Horse out in the Day-time in his Cloaths, if he be used to Cloathing, and when his Heels are dry and cool, it is a bad Groom or a worse Master that suffers him to relapse, except he be such a Horse as cuts intolerably; if so, he is not worth my while to mention, farther than to bequeath him a Collar, for he is not fit for the Road.

Lastly, those Gentlemen who admire the Diversion of Hunting and are hard Riders, should take this Piece of Advice along with them, (*viz.*) that if 'tis a young Horse, and unused to Leaps, he should have the greatest Care imaginable taken to pick out all the Thorns, &c. that may stick about his Fetlock-Joints, &c. For as young Horses generally brush thro' rather than clear their Leaps, they are apt to bang their Legs against Stubs, &c. which with the Points of Thorns sticking in the Flesh, cause Inflammation and Grease. Therefore let such Thorns be very carefully searched by the Finger and pull'd out, and the Legs well wash'd with warm Water, and after they are dry let them be bath'd with some common Spirit of Molasses, Malt, or the like; and after feeding properly, let him be forced down in the Manner I have taught, if he will not lye down of himself, which 'tis ten to one he will not, because his Legs will be uneasy from the Pricks, Knocks, &c. sustain'd in getting through the Hedges. And as a young Horse is, from his not being used to such Work, and the present tender Disposition of his Fibres, most subject to grease or scratch in the Heels (as 'tis call'd;) for these Reasons the Groom ought not to leave him 'till he has eas'd his Legs as much as possible, and seen him lye down. *In fine*, a Horse's Legs in such a Case should be washed and clean'd at least three times a Day. And if he will lye and feed with Captain Burdon's Turnep-Poultice, I can say nothing against such Application.

When

When the Grease has got to an intolerable Height (which it need not be suffered to do unless People are both silly and obstinate) so that the Hair stares, and is (what some term) *pen-seather'd*, then indeed it will be hard to cure it, in such Manner as that the Hair shall lye smooth afterwards. However to put a Stop to such nauseous Discharge, let the Heels, after cutting off the Hair, be first wash'd very clean with Soap and Water, then bath'd with the following Wound-Water pretty warm twice a Day for three Days.

Take *Roch Alum*, and *white Vitriol*, of each two Ounces; A drying powder them together, and burn them either in a Crucible or ^{Wound-}up-^{Water for} on a clean Fire-Shovel till they become a white Calx: Then take *Campfire* one Ounce; powder it by rubbing the End of the Pestle with a little Oil; and of *Bole Armoniac* in Powder, two Ounces; *River or Rain-Water*, two Quarts. Make the Water hot, and stir the other Things into it for a considerable Time.

When you use it, it should be shaken up, and a little of it warm'd in a Pot, and the Sores wash'd with a Piece of Spunge or Rag.

It is a Folly to imagine, that there is Danger in drying up the Ulcers in the Heels of Horses troubled with the Grease, which seemingly discharge so much stinking Matter. For it is the Lodgment of such Matter amongst the Wounds and Hair of the Heels, that makes it of such offensive Savour. In like manner the *Saliva* discharged in human Bodies during a Salivation, smells exceeding strong and offensive, but it is not the *Saliva* or Spittle that naturally smells so, but the Breath, which acquires such Taint, as it passes over the numberless small Ulcers in the Mouth, Throat, &c. of such Persons. And this is easily try'd, by impartially smelling to the discharged *Saliva*, in a Place which the Patient's Breath cannot have tainted. Neither is it, in the Case of decay'd and rotten Teeth, the Person's Breath that stinks but the Teeth; for only remove such Cause, and the Effect will cease. Therefore there is not, strictly speaking, any such thing as a stinking Breath, unless such Person has an Ulcer of the Lungs, which contaminates the very Air in Inspiration.

Horses are very subject to the Scratches or kib'd Heels, ^{Scratches,} from travelling in deep sandy Lanes, or from a natural Gour- ^{Mules, or} dinefs of the Legs, but mostly for want of Care in washing ^{kib'd Heels,} and keeping them clean after Exercise.

The Scratches are so painful a Disorder, that they will cause a Horse to lose his Appetite, and go exceeding lame and stiff for some time after setting out.

The Cure is the same with that of the Grease; only if the ^{The Cure.} Scratches be dry, 'tis best to keep the Heels softened and supple with Curriers Dubbing made of Oil and Tallow; for this will keep the Hide from Cracking, and preserve it as well as it

Watery
Sores, and
running
Fursh.

it does Leather; and it is the only Thing to hinder the Scratches, by using it often before Exercise, and washing the Heels with warm Water, when the Horse comes in.

I shall not make a distinct Chapter of watery Sores, &c. of the Legs, as Mr. Gibson has done, seeing these Disorders may be considered under the Chapter of the Grease, &c. And if a Horse has naturally a running Fursh, I believe there is no Cure that can be accounted safe, no more than we can cure People of sweaty Feet. Therefore the best Way is to keep both these Inconveniencies as sweet and clean as the Circumstances of the Case will admit of, by reason an entire Drying up of such superfluous Matter, which Nature has thought fit to discharge this Way, might bring on worse Evils.

I shall now proceed to the Distempers of the Foot: And first, of Surbating.

C H A P. XLV.

Of Surbating, and narrow Heels.

The Signs.

I MUST own, that the Farriers have a great many Names for Distempers that would puzzle a Man to find out their Etymologies; nor can I think from whence the Term *Surbating* comes, unless from the *French* of *Sur* and *Battre*, which signifies to strike upon, as when the Horse's Hoof strikes upon the Pavement, and thereby becomes hot, or what we call *furbated*.

The Cause.

Surbated Hoofs proceed from hard Usage and injudicious Shoeing, tho' mostly from the natural Conformation or Make of the Horse's Hoof, which if, instead of being of a flat Make and open Heel, it is a deep Hoof with a narrow Heel, you may fully expect that he will (if used upon hard Roads) become surbated or beaten of his Feet in a very short Time, let the Owner take what Care he can of him.

I hope I need not tell the Reader, that easy Shoeing, Greasing, or Liquoring the Hoofs with Hog's Lard or any other Grease (which is still the same, as I have shewn in some of the preceding Chapters) and Stuffing every Night with soft Cow's Dung, is the best Method to ease a beaten Foot. And if now and then you order a little Print of fresh Butter, to be put upon the Soal of the Foot, and lay the Cow-Dung uppermost, it will still make the Horse travel with more Ease to himself and Safety to the Rider for he will not when his Feet are eased be so apt to snapper and stumble. And I have observed, that these Kind of tender-footed Horses are worst when they are new shod; for 'tis either the Beats of the Hammer, or the Shoe that is not yet settled to their thin and tender Soles, that makes

makes them tread like a *Cat upon a hot Backstone*, as we use to say in the North: But when the Shoes are settled to the Feet, these Horses will (some of them) make a tolerable Shew in a Dealer's Hand, if he is so wise as to keep the Spur on the Side, and the Horse on soft Ground. But lest I should be thought to teach them more Cunning than they have already, (tho' they mostly have Occasion for it, seeing all Eyes are upon them) I must proceed; only, before I leave the Subject of beaten or surbated Feet, let me warn the Reader of one common Trick which the Dealers use when they happen to have a Horse that's tender-footed, (*viz.*) they always shew you these Horses in wore-out bad Shoes, and pretend that when he's shod he'll go sound and clever. But it is a Mistake, as I have now hinted, for if he be lame in Shoes that are settled to his Feet, I am sure he will be so in new ones in a much greater Degree than we ourselves are in new Shoes; otherwise from whence the Proverb, *as easy as my old Shoe*. But while a Horse is young and mettlesome he scorns to yield to or shew the growing Infirmary. In like Manner as we ourselves, when Boys, could tread upon harder Grounds, and wear more pinching Shoes than we can at present. Therefore, I say, it is, of the utmost Consequence to examine well the Make of the Hoof when you design to buy; For tho' one of these so useful Creatures may trot sound on hard Ground upon a Shew; yet if his Hoof be what we term a deep Hoof with a narrow Heel, he ought to be refused for it, if the Buyer want one to serve him a good while; but such Horses may do well enough for those whose Business it is to buy the D——1 and sell the D——1, and may serve well enough on Roads that are not too hard for their Corns. However I must tell the Reader that such Kind of Horses cannot be call'd good for the Road, by Reason the Road must be first of all good for such Horses: For when you ride one of these you should send a Pioneer before to level the Roads. Pioneer Horses.

It has been a Method long among Farriers to order a Stuffing of Ox or Cow's-Dung and Vinegar for the Soles of the Feet in these Cases; but surely these Fellows do not rightly consider the Vertues of Vinegar any farther than deeming it a Cooler, and therefore good against a hot, surbated Hoof: But I would have such People know it is not only cooling but also restraining, which last Property is diametrically opposite to the Intention of Cure. And besides, this vegetable acid Juice may by its eminent cooling Quality, if used to a hot Hoof, cause the Horse to founder and go lamer than he would do without such Application, which benumbs him exceedingly in such Cases. Therefore you see how necessary and requisite it is for a Man who undertakes to prescribe Medicines either inwardly or outwardly, to consider thoroughly and with Judgment,

ment, all the particular and different Qualities or Vertues of every individual Ingredient in the Composition, otherwise he can never be said to prescribe judiciously; for although at first slight Consideration a Drug may seem properly adapted for the Cure of a Distemper, yet if we do but give ourselves Liberty to consider a little, we shall find perhaps that such Drug is endu'd with some very different Qualities more than what we at first imagined. But to return:

There are others again who are for softning the Sole of the Foot with greasy Things, and afterwards pouring in a Mixture of boiling Pitch and Tarr: But I do not think these Things can do any Service, because no right Reason can be given why they should ease a Surbated Hoof. Therefore I rather recommend old *De Grey's* Method, which was to take two new-laid Eggs, and after pricking the Feet well, break them raw upon the Soles. After which stuff with Ox or Cow-Dung.

If you only use the Whites of Eggs with such Stuffing, I believe it will be still better; for they are moderately cooling, and by their clammy Nature add Firmness to the dry and brittle Hoof.

I have ordered a Horse of this Sort to be shod with Pieces of old Hat under the Shoes, thinking thereby to let him tread softer, but all to no Purpose, for I could find no Difference in his Travelling. So that in the Main there is no Cure for a beaten Hoof. Therefore what I have said before is all that can be done in the Case.

Hoof-bound, what.

By a Horse's being Hoof-bound is meant, when his Heels are too narrow, &c. or that his Hoof is bound up and drawn together by Wrinkles, both which are a Sign of two great Heat in this Part of the Horse's Body.

There are many and various Methods now in Use for the Cure of this Disorder of the Hoof; and Farriers, no doubt, will tell you that drawing the Soles, and screwing the Heels wider with a Piece of Machinery for the Purpose, will certainly cure your Horse. But altho' I have often taken Notice of this barbarous Custom, and been sorry to see a Flag of Horse-Soles hung out upon every filly Smith's Door; yet I could never convince them that such Method was erroneous and foolish, or that they did amiss when they scraped away so much of the Frush as they generally do to open the Heels in Shoeing, tho' by so doing they weaken the Heels and make them approach nearer together. But as I have said before, *Qui vult decipi, decipiatur.*

Narrow-Heel.

I can give no particular Directions for the Cure of narrow-heel'd Horses, besides what I have said under the Title of beaten and surbated Hoofs. And altho' Mr. *Gibson* has writ well upon Farriery, yet I think he's out, where he describes an

an Operation for the Purpose, seeing little Good ever accrues from it:

C H A P. XLVI.

Of Gravel, Nails, &c. in the Foot.

I NEED not describe the Gravel in the Hoof, any further than what I have done in the preceding Chapter, where I treated of Lameness, and how a Person might guess whether a Horse was lame in the Foot or Shoulder.

The *first* Thing is to get out the Enemy as soon as you can; The Cure, but if you have not very good Reason to believe your Horse gravel'd, by pinching his Sole moderately with a Pair of Pinchers, (for any Horse will shrink if he's hard wrung) I say if you don't find sufficient Reason to believe he is gravel'd, do not suffer the Smith to rip and tear up the poor Creature's Foot with his drawing Knife; for by such injudicious Practice the Horse often gravels, tho' he was not before such Work, by making the Sole so thin that the Gravel works itself thro' to the Quick; and really there is no Occasion to rip up the Foot so much, because if you squeeze him only at every half Inch Distance round the Hoof, you will be sure to hit the Place, if there be Gravel. But then again you are to give Allowance for a thin, and thick, and firm Sole; for thin-sol'd Horses, or such as have tender Feet will shew Symptoms of the Gravel, upon this Tryal, altho' there is not the least Bit got thro' the Sole. And therefore I say, you must give Allowance for a tender-footed Horse.

The Gravel mostly follows the Nail-Holes, and when these pass too near the Quick, 'tis then such Sort of Matter gets in and corrupts, working its Way continually upwards towards the Coronet, or Part between Hoof and Hair, where it very often forms what the Farriers call a Quitter-Bone, of tedious and difficult Cure.

Furthermore a Horse may be gravel'd from his being so thin pared in the Heels or elsewhere of his Foot, that it works its Way thro'; yet I believe the Farriers often make a Mistake by calling the Lameness a Gravel, when it is the Horse's Foot which is crush'd about the Heel by the Shoe that sits too hard, and the crush'd Blood when grown corrupt makes the Horse halt and go lame; therefore upon searching the Hoof it is term'd a Gravel. But as the Cure of both are the same, we may the more easily forgive the Mistake.

After you have got out all the Gravel, (which may be known by a Discontinuation of the Blackness) the Place may be heal'd with the Green Ointment, p. 193, which must be apply'd very

V O L. I.

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warm,

warm, or rather poured hot into the Grievance ; and afterwards fill the hollow Part with something of a more firm Consistence, such as black Pitch, with a little Turpentine or the like. However it may be proper every Night to view how Matters go, lest the Cement be drop'd out in Travelling. The best Way to preserve it in its Place, is to leave the Hole as rough as possible, and hollow'd a little under ; that is, to make the Hole larger within than without, in the same Manner as we fix the Gudgeons of a Door in Stone, by melting Lead into the Cavities.

Some have a Method, and that not despicable, of burning Oil of Turpentine in the Hole, after the Gravel is got out ; for by this Means the Sole, I mean the thin Part next the Quick, is made harder and firmer, to hinder the getting in of foreign Matter ; and after burning the Oil, to melt in any Kind of Cement, such as Pitch, Rosin, Burgundy Pitch, or the like.

Sole to be drawn, if the Gravel lye deep.

If the Gravel lye deep or thro' the Sole of the Foot, which may be easily told when you trace it with the Farrier's drawing Knife, then indeed it is safest and best to draw the Sole, and by this Method you may hinder a Quitter-Bone ; for unless you proceed so as to fetch out the Gravel, it will still work upwards, as I have said, like as an Ear of Rye or Barley will go further and further up one's Arm if we put it under the Wrist-band of the Shirt, and stir the Arm from and to the Body. For a Horse's Hoof is smooth upwards and rough downwards, in the same Manner with an Ear of Rye or Barley : So that if any Gravel get to the Quick, it cannot come out the same Way it went in, unless Scrap'd out, but works still further and further upwards, 'till it makes its Egress about the Coronet of the Hoof. Therefore, if the Gravel lye deep, draw the Sole, and apply Tar and Turpentine warm, 'till a new one be formed firm enough for the Horse to travel upon.

Coffin - Bone affected with the Gravel.

Sometimes the Grievance proceeds still further, and affects the Coffin-bone, which is of so soft and spongy a Nature, that it soon turns carious and rotten. Therefore, if this be the Case, (which tho' it cannot be told 'till the Sole is drawn, yet it may be easily drawn afterwards in two Dressings, when the Blood is stopp'd and the Part well wash'd, by a Continuation of the Blackness, over against the Hole, in the Sole that's drawn) I say, if the Coffin bone be tainted, nothing exceeds the Actual Caustery or Burning Iron contrived with a Point like a Sugar-Loaf, and by drying the Bone in this Manner, and the application of the following spirituous Mixture, with the *Green Ointment*, p. 193, over all, the Part may be made sound and without Blemish, which it can scarcely be, when the Gravel bursts out about the Coronet. The Mixture is this :

The Cure.

Tincture for the Gravel.

Take Tincture of Myrrh-Aloes, half an Ounce ; Tincture of Euphorbium, two Drachms. Mix.

Apply

Apply this, by dipping a small Dozel of Lint in it, to the decay'd Bone, without warming, twice a Day, and the *Green Ointment* over all, as before hinted.

I can't say but there is a great Similitude or Agreement between a Man's Nails and a Horse's Hoof; for when there happens to be a *Gathering*, (as 'tis call'd) under any of the Nails, if it be near the Root of the Nail, it often 'causes it to grow in Ridges or Wrinkles ever after; and in like Manner it fares with Horse's Hoofs when the Gravel gets up to the Coronet, where forming a *Quitter-Bone*, the Farrier is obliged to apply such Things as will destroy the Excrecence or hard Substance, and unless great Care be taken, the Hoof will grow wrinkled, and often lose a Quarter (as 'tis called.)

To cure a Tread upon the Hoof, or what's commonly call'd an *Over-reach*, nothing more need be used than the common *Green Ointment*, p. 193, and a Clout sew'd over the Sore; for the Gravel scarce ever works downwards, because it is hindered by the very Make of the Hoof, as I have before shewn: Neither need you to fear Travelling the Horse a little, unless the Grievance be very bad, for there is a vast deal of difference as to the Danger of Gravel at the Bottom, and Gravel at the Top of the Hoof.

A *Quitter-Bone* is a Kind of hard, round Swelling upon the Coronet, mostly about the Heel or back Part of the Hoof, and generally it grows on the Inside.

The Cause is most commonly from Gravel which has not been got out in Time, but by working its Way upwards, it lodges about the Coronet, forming a *Quitter-Bone*. It also proceeds from Bruises, Stabs, Pricks, Nails and the like, which having been neglected shew the Farrier's Ignorance, or Owner's Fault in not applying in Time.

There are other Causes assign'd, but I cannot think they have any Hand in producing *Quitter-Bones*, therefore I omit their Recital.

The Signs are Lameness, and a visible Swelling in the Place mentioned, which at last breaks, and runs Matter from a small Hole like unto a Fistula.

The Cure of a *Quitter-Bone* is performed by burning several Holes in it pretty deep with a Cautery or Piece of Iron, pointed pyramidically; burn the Holes so big that you may put in Pieces of Sublimate Mercury, as big as Horse-Beans, which let stay there till there turns out a Gore or Lump of putrescied Flesh, after which dress the Wound for some time with the *Green Ointment*, p. 193, with the Addition of Soot, as ordered in the Chapter of the *Farcin*.

It very often happens, that a Horse loses a Quarter of his Hoof by a severe *Quitter-Bone*; for that Part call'd the *Coronet*, being destroy'd, and no other Method yet found so effectual

al as Burning in the Manner I have describ'd, without which a Cure cannot be effected, therefore it is, that the Hoof often parts in two Pieces; and grows so while the Horse lives; which so weakens his Hoof, that when a Stone happens to press harder upon that Part than the rest of the Foot, he is ready to tumble down. But I am apt to believe, that when the Hoof parts quite thro' from the Coronet to the Sole, the Quitter-Bone has been ill cured; for by keeping the Hoof dry, and lapping it round with *Clukin*, as the Sailors call it, pretty well tar'd, from the upper to the lower Part, it will preserve it together, and cause it to grow firm and strong. Yet it requires a quick Eye, and sound Judgment, to tell when all the Matter of the Quitter-Bone is destroy'd, as well as to preserve that Quarter of the Hoof from being lost (as 'tis call'd.)

If you now and then wash the Sore with the following Water, it will hinder proud-Flesh, and cause the Wound to heal more sound than it otherwise would do.

Water for a
Quitter-
Bone.

Take White Wine Vinegar, one Pint; Honey, half a Pound; French Verdigrease in Powder, half an Ounce: Boil them all well, and put it into a Bottle for Use. And to cause the Hoof to grow, Tallow, Dog's Grease and Turpentine, of each equal Quantities, are recommended, tho' I dare say any Grease is as good as Dog's Grease, provided it is free from Salt.

The Signs
of a good
Road Horse.

I have now said what's sufficient for the Cure of most Maladies, which infest this so noble and useful Creature; I say most Maladies, those which I have omitted being not worth Notice, because they fall in naturally under some of the Heads of which I have treated. And as I have far exceeded the Number of Pages at first propos'd to my Subscribers, I must beg Leave to proceed to an Account of the Prices of Drugs used in Farriery; only I beg the Reader would observe one Thing, which is, that he would try before he buy: And tho' you can hardly meet with a Dealer that will let you have a Horse upon Trial a Day or two, yet if they would not, they should have none of my Money; for tho' a Horse stand firm and upright upon his Pasterns, walks and trots like a Doe, goes wide behind, and pretty near before, so as to ruffle the Hair without breaking the Skin, carries his Head in a good Place, and shews himself otherwise a handsome and excellent Horse, yet he may be apt to boggle, or be otherwise vicious, notwithstanding he does not shew his Imperfections in the Dealer's Hand, who never cries *Stinking Fish*, tho' perhaps he may talk honestly; but it is my Opinion (so far as I have try'd this Sort of Traders) that their Tongues and Hearts lye far asunder; but for a thorough-pac'd one, I must recommend my old Friend at the *K—g's—A—s* in *K—nd—I*, who is as sharp a Dealer as any of 'em, and yet takes Care to set his Words, &c. in such proper Places, that he seems to preserve what's commonly stiled a Character.

An

An ACCOUNT of DRUGS used in FAR- RIERY, with their several Prices, according to the present Time.

A				I. s. d.				I. s. d.			
A lloes Succotrine, the best, per Pound	o	6	8					Balsam of Tolu, per Pound	-	-	o 7 0
Ditto, second Sort	o	5	6					Barbadoes Tar, per Pound	o	1	0
Ditto, third Sort	o	4	8					Bole Armenian, com- monly call'd Bole Ar-			
Ditto, Barbadoes	-	o	1 0					moniac, per Pound	o	o	3
Alum, common, per Pound	o	o	2 ½					Bitter Apple, per Pound	o	3	4
Ditto, Roch	-	o	o 4					Barley, French, per Pound	o	o	2 ½
Antimony, crude, per Pound	-	o	o 3 ½					Ditto, Perl	-	o	o 4
Arsenick, white or yel- low, per Pound	-	o	o 4					Bezoar Oriental, per Drachm	-	o	18 0
Affara-bacca Root, per Pound	-	o	1 6					Birchwood, long or round, per Pound	-	o	1 0
Armoniac Salt, crude, per Pound	-	o	2 0					Bay Salt, per Pound	-	o	o 3
Aniseed from Alicant, per Pound	-	o	o 6					Brimstone, round, per Pound	-	o	o 2 ½
Ditto, German,	-	o	o 5					Ditto, per Hundred 22 s.			
Amber, the best, per Pound	-	o	2 4					Balsam of Lucatellus, per Pound	-	o	1 8
Ditto, second Sort	o	1	6					Balsam of Sulphur ani- sated, per Pound	-	o	8 0
Egyptiacum Ointment, per Pound	-	o	1 8					this last is mostly a cheat.			
Ethiops Mineral, per Ounce	-	o	o 6					Bezoar, Mineral, per Ounce	—	o	3 4
Antibeticum poterii, per Ounce	-	o	o 8					Butter of Antimony, per Ounce	-	o	1 4
Aqua Fortis, double, per, Pound	-	o	2 4					Beast Spice, per Pound	o	o	9
Ditto, simple	-	o	1 4								
B								C			
Balsam Capiivi, per Pound	-	o	4 0					Camphire, from 5s. to 1l. 15s. per Pound, tho' now sold at the first Price	—	o	5 0
Ditto of Gilead, per Ounce	-	o	1 8					Cantharides, commonly call'd French-Flies, per Pound	—	o	6 0
Ditto, of Peru, per Ounce	-	o	1 4					Castor of New-England,			
								R 3			per

	<i>l.</i>	<i>s.</i>	<i>d.</i>		<i>l.</i>	<i>s.</i>	<i>d.</i>
per Pound - -	o	5	o	per Pound —	o	o	8
Castor of Russia, per				Epsom Salt, tho' 'tis a			
Pound —	o	3	4	spurious thing, per			
Cinnabar, Native, per				Pound —	o	o	4
Ounce —	o	2	o				
Cochineal, per Ounce -	o	1	4	F			
Coralline, per Pound -	o	o	6	Fennel-seed, per Pound	o	o	8
Coral, red, best, per				Ditto, sweet —	o	o	10
Pound —	o	3	4	Fœnugreek-seed, per Pound	o	o	3½
Ditto, small -	o	1	6	Flower of Brimstone, per			
Cinnamon, best, per Pound	o	8	6	Pound —	o	o	4
Cream of Tartar, per				Ditto, of Benjamin,			
Pound —	o	o	8	per Ounce —	o	8	o
Crabs-Eyes, per Pound	o	2	8				
Cassamunair-root, per				G			
Ounce —	o	o	4	Grains of Paradise, per			
Contrayerva-root, per				Pound —	o	1	o
Pound —	o	3	o	Gum-Gamboge, per Pound	o	3	o
Castile Soap, per Pound	o	1	o	Gum-Arabic, per Pound	o	o	8
Cardamoms, per Pound	o	4	4	Affa-fœtida, per Pound	o	3	o
Carduus-seed, per Pound	o	1	o	Gum-Euphorbium, per			
Caraway-seed, per Pound	o	o	2½	Pound —	o	1	2
Corianders, per Pound	o	o	2½	Gum-Galbanum, from			
Calomel, per Ounce	o	o	9	7 s. 6 d. to 20 s. per			
Cinnabar of Antimony,				Pound —	o	7	6
per Ounce —	o	o	8	Gum-Galbanum, strain-			
Crocus Metallorum, per				ed, if true —	o	8	o
Pound —	o	1	8	Gum-Guaiacum, per			
				Pound —	o	5	o
D				Gum-Mastick, per Pound	o	5	4
Diapente, true, per Ounce	o	o	2	—Myrrh, best, per Pound	o	2	8
Dragon's Blood, the best,				—Scammony, best, per			
per Pound -	o	12	o	Ounce —	o	o	10
Ditto, per Ounce -	o	o	10	—Storax, per Pound	o	6	o
Ditto, Second Sort, per				Guaiacum-Wood, Rasp-			
Pound —	o	6	o	ings, per Pound -	o	o	1
Ditto, Third, Ditto	o	4	o	Gentian-Root, per Pound	o	o	5
Dialthæa Ointment, per				Ginger, white, per Pound	o	o	10
Pound —	o	1	2				
Diaphoretic Antimony,				H			
per Ounce —	o	o	4	Hysop-Water, per Pint	o	o	4
Diagridium, per Ounce	o	1	4	Hiera Picra Species, per			
				Pound —	o	12	o
E				Honey of Roses, per Pound	o	1	4
Elicampne, in Powder,				Hartsborn, calcined or			
per Pound —	o	o	6	burnt, per Pound -	o	1	3
Elebore, black or white				Horse-Spice, per Pound	o	o	6
			per				Juniper

IMPROVED.

247

I l. s. d.
Juniper-Berries, per Pound 0 0 4
 ——— per Hundred weight ——— 0 18 0

Jesuit's Bark, per Pound 0 7 6
Ditto, Quill'd - 1 0 0
Ising-glass, best, per Pound 0 5 0
 ——— Second Sort - 0 4 4
 ——— Third Sort - 0 3 4
Ditto, ordinary - 0 2 0
Jallap-root, powder'd, per Pound ——— 0 6 8
Ditto, in Bulk - 0 4 6
Japan Earth, per Pound 0 2 8
Juniper-Water, per Pound 0 0 8

L

Laurel-Berries, per Pound 0 0 3
Lapis Calaminaris, per Pound ——— 0 0 3
Lapis Tytiæ, per Pound 0 5 4
Lead, white, per Pound 0 0 3
Ditto, red ——— 0 0 2½
Liquorice-root, best, per Pound ——— 0 0 5
Liquorice-root, second Sort ——— 0 0 0
Lemnian Earth, per Pound ——— 0 0 6
London Treacle, per Pound ——— 0 2 8
Linseed-Oil, per Gallon 0 3 4
Ditto, Cold drawn, per Pound ——— 0 1 4
Lac Sulphuris, per Pound 0 4 0

M

Millepedes, prepared, per Pound ——— 0 5 0
Mint-Water, per Pound 0 0 4
Mitbridate, per Pound 0 3 4
Martiatum Ointment, per Pound ——— 0 1 6
Mercurius Dulcis, per Ounce ——— 0 0 7
Mercury præcipitate, red per Ounce ——— 0 0 6
Ditto, sublimate, per

Pound ——— l. s. d.
 0 6 6

N

Nitre or Salt Petre, per Pound ——— 0 0 9
Nerve-Ointment ——— 0 1 4
Nitre-Spirit, common, per Pound ——— 0 3 4
Ditto, sweet ——— 0 2 4

O

Opium, per Pound ——— 0 10 0
Oil of Sweet Almonds, per Pound ——— 0 2 4
Ditto, Bitter ——— 0 2 0
Oil of Chamomile, common, per Pound ——— 0 1 4
Chymical, *Ditto*, per Ounce ——— 0 5 0
Ditto, of Swallows ——— 0 1 4
Ditto, of St. John's-wort ——— 0 1 4
Ditto, of Bays, common ——— 0 0 6
Flanders, *Ditto* ——— 0 1 4
Oil of Worms ——— 0 1 4
Oil of Olives, the best, per Pound ——— 0 1 0
Ditto, Second Sort 0 0 10
Oil of Petre, per Pound 0 1 8
Oil of Spike, common per Pound ——— 0 0 8

This last is a great Cheat, being only *Oil of Turpentine* tinctured with a little *Barbadoes Tar*, for the true Oil is very scarce and exceeding high pric'd.

Oil of Turpentine, per Pound ——— 0 0 6
Oil of Anniseed, per Pound 0 8 6
 — *Juniper*, true, per Pound ——— 0 7 0
 — *Origanum*, per Ounce 0 1 4
 — of *Vitriol*, per Pound 0 2 0

R 4

Pepper,

P				l. s. d.			
Pepper, long, best, per							
Pound — —	o	1	6				
Ditto, second Sort	o	0	10				
Pitch, Burgundy, per							
Pound — —	o	0	4				
Poppy-seed, white, per							
Pound — —	o	1	4				
Ditto, black, —	o	2	0				
Parma Oil, or Sperma							
Ceti, per Pound —	o	4	6				
Prunella Salt, per Pound	o	1	4				
Q							
Quicksilver, per Pound	o	5	0				
R							
Rhubarb, the best, from							
11. a Pound, to 5l. or							
upwards, but the pre-							
sent Price is 3l. per							
Pound							
Ditto, second Sort							
worth — —	o	0	0				
Resin, yellow, per Pound	o	0	1½				
Royal Styptic Water, per							
Ounce — —	o	0	4				
Resin of Jallap, true,							
per Ounce — —	o	4	6				
Ditto, of Scammony,							
per Ounce — —	o	2	6				
S							
Saffron, English, best,							
per Ounce — —	o	2	6				
Sena of Alexandria, per							
Pound — —	o	2	8				
Sanders, yellow, Rasp-							
ings, per Pound — —	o	2	4				

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